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ABSTRACT

A private, nonprofit corporation, New American Schools (NAS) funds the development of designs aimed at transforming entire schools at the elementary and secondary levels. This report describes a large number of NAS sites in their early implementation stages. The report is the first in a series that monitors a longitudinal sample of schools implementing NAS designs. The schools' demographic and performance characteristics, prior to joining NAS, are described, followed by a framework for monitoring indicators related to implementation. A wide array of related factors for samples of NAS schools in their first few years are detailed. The longitudinal sample includes schools in eight jurisdictions; the aim was to have a census sample of NAS schools and teachers. A series of descriptive and multivariate analyses to understand the general characteristics of the schools was used. The report focuses on key design-team elements, factors related to implementation of key design-team elements, data and measures, implementation measures, the types of schools NAS designs are assisting, the status of implementation, the relationship of implementation and school context to other implementation factors, teacher support and judgments about early effects of designs, implications with a look to the future, and national reform efforts. (RJM)

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Monitoring The Progress of New American Schools: A Description of Implementing Schools in a Longitudinal Sample

Mark Berends with Jodi Heilbrunn, Christopher McKelvey and Thomas Sullivan

DRU-1935-NAS

September 1998

Prepared for New American Schools

J. Ryan

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RAND Education

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PREFACE

As a private non-profit corporation, New American Schools (NAS) began in 1991 to fund the development of designs aimed at transforming entire schools at the elementary and secondary levels. After competition and development phases, NAS currently is scaling-up its designs to form a critical mass of schools within the partnering districts.

The purpose of this report is to describe a large number of NAS sites in the early implementation stages of NAS's scale-up phase. During this phase, part of RAND's research activities include monitoring the progress of about 175 schools in eight jurisdictions through the 1999-2000 school year. We provide a description of schools' test scores, demographics, climate, implementation status, and factors related to overall implementation and teacher reports of early effects and support.

RAND will monitor changes in this sample of schools over the next several years. This report establishes a baseline for tracking these changes. It is our hope that all those interested in school improvement - e.g., parents, teachers, administrators, policymakers, researchers, and community members - will benefit from our analysis.

Other RAND reports about New American Schools include:

Lessons from New American Schools' Scale-up Phase: Prospects for Bringing Designs to Multiple Schools by Susan J. Bodilly, 1998 (MR-1777-NAS).

New American Schools after Six Years by Thomas K. Glennan, Jr., 1998 (MR-945-NASDC).

Lesson's from New American Schools Development Corporation's Demonstration Phase by Susan J. Bodilly, 1996 (MR-729-NASDC).

Reforming and Conforming: NASDC Principals Discuss School Accountability Systems by Mitchell Karen, 1996 (MR-716-NASDC).

Designing New American Schools: Baseline Observations on Nine Design Teams by Susan J. Bodilly, Susanna Purnell, Kimberly Ramsey, and Christina Smith, 1995 (MR-598-NASDC).

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CONTENTS

PREFACE iii

FIGURES ix

TABLES xi

SUMMARY xii
    RESEARCH QUESTIONS xii
    METHODS AND DATA xiii
    FINDINGS AND IMPLICATIONS xiv
        NAS Designs Are Assisting Challenging Schools xiv
        Implementation Varies xiv
        Factors Related to Variation in Implementation xv
        Factors Unrelated to Variation in Implementation xv
        Implementation Varied Among Designs for Several Reasons xvi
        Importance of Clear Communication by Designs and Resource Availability xvi
        Will Designs become "School-wide"? xvii
    FUTURE WORK xviii

ACKNOWLEDGMENTS xix

ABBREVIATIONS AND ACRONYMS xxi

1. INTRODUCTION AND RESEARCH QUESTIONS 1
    THE PROBLEM NEW AMERICAN SCHOOLS IS ADDRESSING 1
    THE NEW AMERICAN SCHOOLS EDUCATIONAL REFORM EFFORT 2
    RAND'S EVALUATION ROLE 3
    QUESTIONS ADDRESSED IN THIS REPORT 5
    ORGANIZATION OF THE REPORT 7

2. FRAMEWORK FOR EXAMINING DESIGN IMPLEMENTATION 8
    KEY DESIGN TEAM ELEMENTS 8
        Organization and Governance 10
        Teacher Professional Life 11
        Content and Performance Standards 12
        Grouping Arrangements 12
        Instructional Strategies 13
        Involvement of Parents and Community 14
    FACTORS RELATED TO IMPLEMENTATION OF KEY DESIGN TEAM ELEMENTS 14
        Student Social Background and Prior Performance 16
        Teacher Background Characteristics and Readiness 17
        School Context: Demographics 17
        School Context: Implementation Factors 18
        Parent and Community Demand and Readiness 19
        Jurisdiction Environments 20
    MONITORING SCHOOL ACHIEVEMENT AND ENGAGEMENT 21

3. DATA AND METHODS 24
    A SAMPLE OF NEW AMERICAN SCHOOLS 25
        Response Rates 26
    DATA 28

IMPLEMENTATION MEASURES 29
  Design Elements 30
  Teacher Support for Designs and Teacher Judgments about Design Effects 31
SCHOOL IMPLEMENTATION FACTORS 33
TEACHER AND SCHOOL FACTORS 35
  Teacher Background Characteristics 35
  School Demographic Characteristics 36
ANALYTIC APPROACH 38

4. THE TYPES OF SCHOOLS NAS DESIGNS ARE ASSISTING: BASELINE DESCRIPTION 39
  DEMOGRAPHIC CHARACTERISTICS OF SCHOOLS 39
  SCHOOL CLIMATE: NAS SITES COMPARED TO NATION 42
    Absenteeism 43
    School Readiness 44
    School Safety 45
  SCHOOL ACHIEVEMENT BEFORE IMPLEMENTION OF NAS DESIGNS 46
  SUMMARY 48

5. STATUS OF IMPLEMENTATION 50
  PRINCIPAL REPORTS OF IMPLEMENTATION 50
  ORGANIZATION AND GOVERNANCE 52
  TEACHER PROFESSIONAL LIFE 54
  PERFORMANCE EXPECTATIONS 58
  INSTRUCTIONAL GROUPING ARRANGEMENTS 58
  INNOVATIVE INSTRUCTIONAL STRATEGIES 61
  INVOLVEMENT OF PARENTS AND COMMUNITY 62
  AN OVERALL MEASURE OF IMPLEMENTATION 65
  SUMMARY 67

6. THE RELATIONSHIP OF IMPLEMENTATION TO SCHOOL CONTEXT 70
  RELATIONSHIP TO OTHER IMPLEMENTATION FACTORS 70
    School's Experience with Designs 71
    Familiarity of Teachers with Designs 71
    Communication by Designs to Schools 73
    Staff Stability 74
    Resource Availability 75
    Prior Experiences with Restructuring 77
  HOW IMPLEMENTATION FACTORS VARY AMONG DESIGNS 78
  RELATIONSHIP TO SCHOOL DEMOGRAPHICS 82
  RELATIONSHIP TO TEACHER BACKGROUND CHARACTERISTICS 83
  SUMMARY 83

7. TEACHER SUPPORT AND JUDGEMENTS ABOUT EARLY EFFECTS OF DESIGNS: EXPLORING RELATIONSHIPS TO TEACHER BACKGROUND AND SCHOOL CONTEXT 85
  MEASURES 85
  DEPENDENT VARIABLES 86
  INDEPENDENT VARIABLES 87
    School Demographic Characteristics 87
    School Implementation Factors 88
  ANALYTIC APPROACH 88
  RESULTS 88
    Differences Between and Within Schools 88
    Teacher Support of NAS Designs 90

NAS Design Effects on Teachers' Professional Growth 92
NAS Design Effects on Student Achievement and Engagement 92
SUMMARY 93

8. IMPLICATIONS WITH A LOOK TO THE FUTURE 95
IMPLEMENTING NAS DESIGNS IN CHALLENGING SCHOOLS 95
IMPORTANCE OF CLEAR COMMUNICATION BY DESIGNS 96
APPROPRIATE ALLOCATION OF CRITICAL RESOURCES 97
"SCHOOL-WIDE" REFORM? 98
FUTURE RESEARCH 99

A. NEW AMERICAN SCHOOLS: DEVELOPING A NATIONAL REFORM EFFORT 101
THE NEW AMERICAN SCHOOLS REFORM INITIATIVE 101
COMPETITION PHASE 102
DEVELOPMENT PHASE 103
DEMONSTRATION PHASE II 104
SCALE-UP PHASE III 105
THE NAS DESIGN TEAMS 105
Audrey Cohen or Purpose-Centered Education 107
ATLAS Communities (Authentic Teaching and Learning for All Students) 108
Co-NECT 110
Expeditionary Learning Outward Bound (ELOB) 111
Modern Red Schoolhouse (MRSH) 113
National Alliance for Restructuring Education (NARE) 115
Roots & Wings (RW) 116
FROM DESIGNS TO DESIGN-BASED ASSISTANCE 119
RAND'S ROLE IN NEW AMERICAN SCHOOLS 122

B. ANALYTIC APPROACH FOR MULTI-LEVEL MODELS 123

BIBLIOGRAPHY 126

FIGURES

Figure 1.1. Phases of New American Schools Initiative and RAND Roles. 3

Figure 1.2. RAND Research Activities During NAS Scale-up 5

Figure 2.1. Key NAS Design Elements Supported by Design-Based Assistance 9

Figure 2.2. Factors Related to Implementation 16

Figure 2.3. Framework for Understanding Implementation of Key Design Elements and Their Relationship to Student Outcomes. 22

Figure 4.1. School Poverty Composition in NAS Sites, 1994-1995 41

Figure 4.2. School Minority Composition in NAS Sites, 1994-1995 42

Figure 4.3. Principal Reports of Problems with Absenteeism in NAS Sites (1995-1996) Compared to Nationally Representative Schools and Staffing Survey (1993-1994). 44

Figure 4.4. Principal Reports of Problems with School Readiness in NAS Sites (1995-1996) Compared to Nationally Representative Schools and Staffing Survey (1993-1994). 45

Figure 4.5. Principal Reports of Problems with Safety in NAS Sites (1995-1996) Compared to Nationally Representative Schools and Staffing Survey (1993-1994). 46

Figure 4.6. Baseline Achievement Levels of NAS Sites Compared to District or State Averages on Standardized Tests Used in Accountability Systems 48

Figure 5.1. Principal Reports of Implementation Status, Spring 1997. 51

Figure 5.2. School Authority to Make Decisions about Budget, Staffing, and Programs by NAS Design, Spring 1997 53

Figure 5.3 Teacher Reports about Shared Decision Making in Their School by NAS Design, Spring 1997 54

Figure 5.4. Teachers as Continual Learners and Team Members 56

Figure 5.5. Teachers Meet to Discuss and Critique Instruction 57

Figure 5.6. Teachers Meet with Teachers from Other Schools to Discuss Implementation Progress by NAS Design, Spring 1997 57

Figure 5.7. Performance Expectations Index by NAS Design, Spring 199758

Figure 5.8. Alternative Student Grouping Arrangements by NAS Design, Spring 1997 60

Figure 5.9. Block Scheduling for Specific Curricular Purposes by NAS Design, Spring 1997 60

Figure 5.10. Innovative Instructional Strategies Index by NAS Design, Spring 1997 62

Figure 5.11. Students Apply Learning in Ways that Directly Benefit the Community by NAS Design, Spring 1997 64

Figure 5.12. Parent and Community Involvement by NAS Design, Spring 1997 65

Figure 5.13. Overall Implementation Index by NAS Design. 67

Figure 6.1. Overall Implementation Index by the Number of Years School Has Been Implementing. 71

Figure 6.2. Implementation Index by How Familiar Teachers are with NAS Design in Their School. 73

Figure 6.3. Implementation Index by Clarity of Communication by Designs to School Staff. 74

Figure 6.4. Implementation Index by Staff Stability - Whether or Not 90% or More of Teachers Remained in School between the 1995-1996 and 1996-1997 School Years. 75

Figure 6.5. Implementation Index by Resource Availability. 76

Figure 6.6. Implementation Index by Whether or Not School has Experience with Restructuring Activities. 78

TABLES

Table 3.1 25
Table 3.2 27
Table 3.3 28
Table 3.4 32
Table 3.5 35
Table 3.6 36
Table 3.7 38
Table 6.1 80
Table 6.2 81
Table 7.1 89
Table 7.2 91

SUMMARY

This is a first in a series of reports that monitors a longitudinal sample of schools implementing New American Schools' designs. This report describes these schools in terms of their demographic and performance characteristics before they began implementation (e.g., poverty composition and test scores). This report also lays out a framework for monitoring indicators related to implementation and analyzes a wide array of implementation indicators and related factors for a sample of NAS schools in their first few years of implementation. The aim of this report is a thorough description of these schools so that we can better understand their progress over time.

RESEARCH QUESTIONS

Funded by the private sector, NAS sought to engage the nation's best educators, business people, and researchers in the task of creating, testing, and fostering the implementation of whole-school designs that were not constrained by existing regulations, work rules, and conventions. These beginnings of "break the mold" schools have evolved to the point where in 1995 NAS began to widely diffuse the designs in a large number of schools within a number of districts - i.e., its "scale-up phase." The main subject of this report is the implementation status of the designs within some of these schools and districts that began this scale-up phase.

Specifically, our analyses address several sets of questions, including:

Baseline Description:

- What are the demographic and performance characteristics of the schools design teams began assisting at the beginning of scale-up?

Status of Implementation

- What is the status of implementation as of the 1996-1997 school year?
- Are schools implementing critical components of the NAS designs?

- What factors promote the implementation of various program elements?

Teacher Support and Reported Effects

- How supportive are teachers of the NAS designs in their schools?
- Based on teacher judgments, what are the effects of the designs on teachers' professional growth and student achievement and engagement?
- Are teacher background characteristics - such as gender, race-ethnicity, educational background, age, or experience - related to support and perceived effects on students and teachers?
- Are school demographic characteristics and implementation factors related to support and teacher reports about the effects of the design in their school?

METHODS AND DATA

RAND's longitudinal sample includes schools in eight jurisdictions that initiated implementation of NAS designs no later than the fall of 1996. These eight jurisdictions include Cincinnati, Dade, Kentucky, Memphis, Philadelphia, Pittsburgh, San Antonio, and Washington State.

Our aim was to have a "census" sample of NAS schools and teachers implementing designs by the fall of 1996. That is, we wanted to gather information from all the principals and teachers in implementing sites as well as cull relevant data from district records on these schools. The obtained sample for the analyses in this report are 130 implementing NAS schools that agreed to participate in the RAND study and report that they were actually implementing a NAS design by the spring of 1997.

We conducted a series of descriptive and multivariate analyses to better understand the general characteristics of the schools the designs began assisting and the status of implementation within these NAS sites during the 1996-1997 school year. Future reports in this series will address trends not only in implementation, but also student and school performance measures broadly defined.

FINDINGS AND IMPLICATIONS

NAS Designs Are Assisting Challenging Schools

For the most part, the NAS designs entered schools that were performing at or below the district average on the mandated tests administered in each jurisdiction. Moreover, the NAS designs are being implemented in schools that are serving student populations that are disproportionately poor and minority, especially when compared to the national norm.

When comparing the NAS school climate indicators to a national sample, we find that when compared to the nation as a whole, the NAS principals report greater problems with absenteeism and students coming to school prepared to learn. In terms of school safety, the NAS sites do not differ from the nation's schools.

> Whether designs and the assistance they provide to these challenged schools in these challenged districts improve the educational performance of students will be addressed in subsequent RAND reports (as well as others' research).

Implementation Varies

We conducted a number of descriptive analyses to further our understanding of the status of implementation in the NAS sites early on in the scale-up phase. Based on survey questions asked of all the teachers within the 130 implementing schools, this report provides information about a wide variety of indicators across the following areas of school restructuring, including:

- organization and governance;
- teacher professional life;
- performance expectations of students;
- instructional grouping arrangements;
- instructional strategies; and
- parent and community involvement.

Compared to other implementation indicators, teachers tended to report higher levels of implementation when considering school authority to make budget, staffing, and program decisions and school decision making about governance issues. Governance arrangements are a frequent focus in school restructuring initiatives (Murphy, 1991; Bryk et al., 1998). It is important to note, however, that teachers tend to overestimate the degree to which their school has authority (Bodilly, 1998; Berends and King, 1994; Bimber, 1993).

Teachers tended to rate their schools in the mid-range of implementation for indicators of teacher professional life, performance expectations, instructional grouping and strategies, and parent and community involvement. As we continue to monitor these schools over time, we will be able to assess whether schools deepen their implementation according to these indicators - both by increasing the overall school averages, but also decreasing the differences among teachers within schools.

Factors Related to Variation in Implementation

We found that teachers who reported higher implementation levels in their schools also tended to report:

- More experience (i.e., number of years implementing);
- Greater familiarity with the designs;
- Clearer information about implementation provided by the design;
- More stable staffs;
- Greater resource availability (e.g., materials to support instruction, professional development, time for planning and collaboration, consultants to advise and provide support, and funding); and
- Prior experiences with school restructuring.

Factors Unrelated to Variation in Implementation

We found that differences in levels of implementation were not related to several school demographic characteristics, such as poverty composition, minority composition, level (i.e., elementary, middle, high school), and size.

Moreover, our analysis shows that varying degrees of implementation were not related to teacher background characteristics, including gender, racial-ethnic background, educational degree (bachelor's vs.

master's or above), age, and years of experience within their current schools.

These findings about school and teacher characteristics suggest that NAS designs can be implemented to the extent observed in our analysis in a wide variety of schools, regardless of the demographic features of the schools and their teaching staffs. However, we examined neither the leadership qualities of the principals and teachers, nor the *quality* of teachers within these implementing schools. These are likely to be critical for the success of design-based reforms, and our future research aims to address some of these issues.

Implementation Varied Among Designs for Several Reasons

Some designs seemed to have made significant progress in implementation according to the array of indicators analyzed here. Particularly, CON and RW tended to be at higher levels, while MRSH and ATLAS tended to be at lower levels. For the other designs, the levels of implementation varied depending on the particular implementation indicator.

Our results show that when compared to schools with lower levels of implementation (ATLAS and MRSH), schools with higher levels (CON and RW) reported more experience (i.e., implementing for two years or more) with the designs and were more familiar with them. These schools with higher levels of implementation also had teachers who reported clearer communication by the teams and more available resources for implementation.

Importance of Clear Communication by Designs and Resource Availability

Based on teachers' survey responses, our analysis suggests that clear communication by design teams to schools and resources are important for implementation, support, and teacher perceptions about design effects.

Teachers in schools reporting greater clarity of the communication by designs to schools also reported greater levels of design implementation. Moreover, such communication was positively related to teacher support for the design and teachers' judgements about the effects of the designs on teacher professional growth and student achievement and engagement.

Our findings also suggest that teacher-reported resources have important consequences for the implementation process. Greater resource availability was related to higher levels of implementation, greater support, and more positive effects of the designs on teacher reports about their professional growth and students' achievement and engagement. Resources in this analysis refers to the degree to which teachers report resources were available - e.g., materials to support instruction, professional development, time for planning and collaboration, consultants to advise and provide support, and funding.

Along with RAND's other research on NAS (see Keltner, 1998; Bodilly, 1998; Berends and Bodilly, forthcoming), the findings in this report about resource availability do not imply throwing more money at schools, but rather suggest that schools and districts need to think about reallocating existing funding streams.

Will Designs become "School-wide"?

More needs to be known about whether the implementation of a NAS design becomes a school-wide phenomenon. Our analysis reveals that a vast majority of the differences among teachers occur within rather than between schools (at least when considering teacher support for the designs and teacher-reported effects of the designs on teachers and students). Over the next few years, we expect increases in implementation levels, especially if designs continue to provide assistance and teachers continue to become more familiar with the design in their school. The designs may then become school-wide. However, a danger in educational reform initiatives - especially those within urban settings with many complex economic, political, and social challenges - is that the NAS designs may be another "program" that is turned on and off at selected times during the school day, week, and/or year. As time goes on, the designs may be at risk of being turned off altogether.

This is an issue that RAND will address with the longitudinal sample of implementing NAS schools. If teachers, designs, and districts can sustain a focus on the NAS designs' coherent visions to structure the educational opportunities of students and teachers, it is likely that the designs will become more widespread in schools. They may even become school wide. Our analysis suggests, however, that at present, the NAS designs are not being comprehensively implemented throughout the school.

FUTURE WORK

As additional data in future years is collected, we will be able to assess the progress these schools have made. Particularly, we will monitor whether the degree of implementation deepens in these schools and whether teachers within schools come to agree with their colleagues over time about the implementation progress. The analyses in this report set the baseline for such an assessment.

In future reports, we will continue to analyze the progress that the NAS sites in our sample make in terms of implementation, teacher support, and teacher judgements about effects on teachers and students. In addition whenever the data permit, we will report trends in school performance indicators as provided by districts in their public reports about the school's test score performance, absenteeism rates, and disciplinary problems.

ACKNOWLEDGMENTS

A research project such as this is never accomplished without the collaboration and cooperation of many people and organizations. We would like to thank New American Schools, the Ford Foundation, the Pew Charitable Trusts, the John D. and Catherine T. McArthur Foundation, the Knight Foundation, and another donor for their support of our research. We are also grateful to the teachers and principals in the schools who gave of their time to respond to our questions, the staff in districts and states who helped us piece together relevant data, and the design teams who clarified issues along the way. All played a crucial role in providing information to better understand what kinds of schools the NAS designs are working with, and we appreciate their effort and dedication to improving the capacity of schools, the professional development of teachers, and the well-being of students.

We are thankful to the members of the Research Advisory Panel (paid for by the Annenberg Foundation) who provide critical guidance to RAND's research on NAS. Members include Barbara Cervone, Paul Hill, Janice Petrovich, Andrew Porter, Karen Sheingold, and Carol Weiss. We continue to learn from their experience, expertise, and encouragement. In addition, we are grateful to Adam Gamoran and Fred Newmann, who shared their expertise during the development of our principal and teacher surveys. Several colleagues within RAND also contributed to the research underlying this report. Despite the cooperation, support, and guidance of these individuals and agencies, the errors in this report are our responsibility.

ABBREVIATIONS AND ACRONYMS

Symbol	**Definition**
AC	Audrey Cohen College System of Education
ATLAS	Authentic Teaching, Learning, and Assessment
CON	Co-NECT
ELOB	Expeditionary Learning/Outward Bound
MRSH	Modern Red Schoolhouse
NA	National Alliance for Restructuring Education
NAS	New American Schools
RW	Roots & Wings

1. INTRODUCTION AND RESEARCH QUESTIONS

This report presents a set of analyses of data from what will be a longitudinal sample of New American Schools (NAS) during it scale-up phase beginning in 1995-1996. Within the NAS initiative, scale-up refers to the wide diffusion of NAS design teams within partnering jurisdictions. The aim is to create a critical mass of schools that have adopted NAS designs for creating environments within districts, schools, and classrooms conducive to improving student learning. What follows in this report is a further description of NAS and the designs, the research data and methods, and results of survey data from schools that will be RAND's longitudinal sample. It describes in detail these schools by analyzing a variety of indicators of implementation and related factors. Future reports will document the progress of implementation, organizational change, and performance of these schools.

THE PROBLEM NEW AMERICAN SCHOOLS IS ADDRESSING

For some time, there have been rumblings of the need to reorganize schools to create learning opportunities that are more consistent with the needs of American society as it enters the next century. Concerns about how well the American education system is serving societal needs have a long history in this nation (Kliebard, 1986; Tyack and Cuban, 1995). For example, the 1983 National Commission on Excellence in Education's report *A Nation At Risk* stated, "Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being taken over by competitors throughout the world...If an unfriendly power had attempted to impose on America the mediocre educational performance that exists today, we might have viewed it as an act of war." Not surprisingly, new educational interventions and experiments emerged.

The debate about the state of education in the United State continues. With the recent release of the Third International Mathematics and Science Study (TIMSS), showing that our high school students continue to lag behind other countries, further efforts to improve student achievement scores in this country will continue. In addition, as educational and income inequalities persist and as American society becomes increasingly diverse, attention to equity will continue as well (see Kozol, 1991; Jencks and Peterson, 1991; Smith, 1995; National Research Council, 1997).

It is within this context, with attention toward improving equity and excellence, that the New American Schools initiative was founded. Stemming from meetings such as the 1989 meeting of President Bush and state governors, national educational goals emerged. These goals developed into Bush's *America 2000* and later Clinton's *Goals 2000*. The flurry of reports on the condition of American education, the new policies and innovative activities established a positive climate for reform. The conventional wisdom was that schools should and could do a better job of helping students learn basic skills in reading, writing, mathematics, and use of technology (Johnson and Immerwahr, 1994).

THE NEW AMERICAN SCHOOLS EDUCATIONAL REFORM EFFORT

NAS was founded during the summer of 1991 as part of former President Bush's America 2000 effort to support new elementary and secondary school designs, and NAS received continuing support by the Clinton administration through Goals 2000 (Bodilly, 1998; Glennan, 1998; Stringfield et al., 1996). Funded by the private sector, NAS sought to engage the nation's best educators, business people, and researchers in the task of creating, testing, and fostering the implementation of whole-school designs that were not constrained by existing regulations, work rules, and conventions. Thus, the initial aim of NAS was to help develop "break the mold" schools to provide innovative options within the public education sector to better educate students for the societal needs of the 21st Century.

The goal of NAS is to help a large number of schools change their organization and practices to improve student learning. To make this goal a reality, NAS initially organized its work into several phases (see Figure 1.1):

- a competition phase to solicit proposals and select designs;

- a development phase of one year to develop the ideas in the proposals in concrete ways;
- a demonstration phase of two years to pilot the designs in real school settings; and
- a scale-up phase in which the designs would be widely diffused in partnering jurisdictions across the nation.

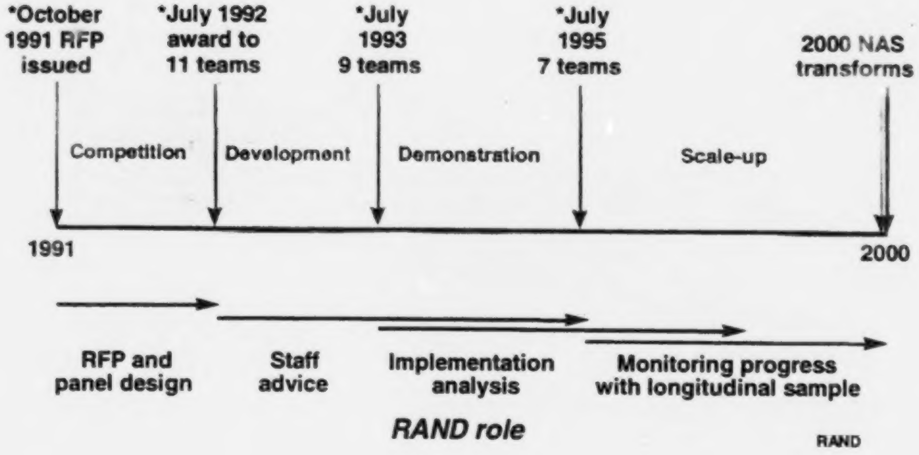
*October 1991 RFP issued
*July 1992 award to 11 teams
*July 1993 9 teams
*July 1995 7 teams
2000 NAS transforms
Competition
Development
Demonstration
Scale-up
1991
2000
RFP and panel design
Staff advice
Implementation analysis
Monitoring progress with longitudinal sample
RAND role
RAND

Figure 1.1. Phases of New American Schools Initiative and RAND Roles.

RAND'S EVALUATION ROLE

Initially, RAND helped NAS create a request for proposals and conduct a national competition for design proposals. Subsequently, RAND studied the initial implementation of the designs during the development and demonstration phases, providing feedback to both NAS and the design teams.

With the beginning of scale-up of the NAS designs in the fall of 1995, RAND's research agenda expanded. We began to address broader questions to document the progress of the NAS initiative:

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- Are the critical components of the NAS designs being implemented across a wide array of schools?
- What practices and policies of districts, schools, the design teams, and NAS itself promote or inhibit implementation of designs and design-based assistance?
- What are the sources and uses of funds for the designs?
- Do the NAS designs extend beyond changes in school organization and governance and permeate classrooms to change curriculum and instruction?
- Over time, what is the progress of the schools being assisted by NAS design teams in student and school performance?

To provide answers to these questions, RAND is conducting a series of studies that will extend through the year 2000. The timing of these broad research activities is portrayed in Figure 1.2. RAND's work relies on a variety of data collection methods – interviews, focus groups, case studies, surveys, observations, gathering of school and classroom artifacts, document analysis, and district-provided data. In the supplementary study of changes in classroom practice, we will administer a commercial test to a sample of fourth graders in NAS and non-NAS schools. All of these data inform our understanding of the reform that NAS is attempting to accomplish in districts, schools, classrooms, and the academic life of students across the United States.

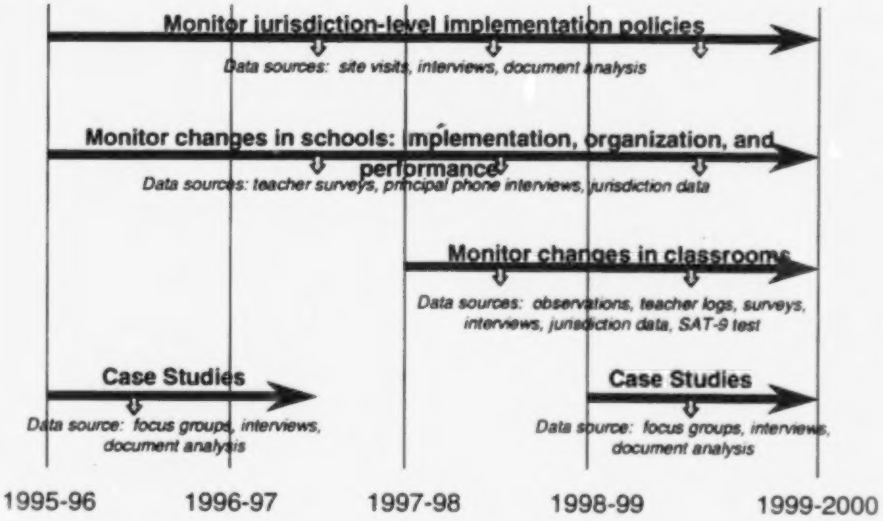
Monitor jurisdiction-level implementation policies
Data sources: site visits, interviews, document analysis
Monitor changes in schools: implementation, organization, and performance
Data sources: teacher surveys, principal phone interviews, jurisdiction data
Monitor changes in classrooms
Data sources: observations, teacher logs, surveys, interviews, jurisdiction data, SAT-9 test
Case Studies
Data source: focus groups, interviews, document analysis
Case Studies
Data source: focus groups, interviews, document analysis
1995-96
1996-97
1997-98
1998-99
1999-2000

Figure 1.2. RAND Research Activities During NAS Scale-up

QUESTIONS ADDRESSED IN THIS REPORT

A core task in the RAND research on NAS is to monitor the progress of NAS schools using a longitudinal sample. This is the first report on that task. Most of the information in this report is based on survey

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information gathered in the spring of 1997. We currently plan to continue these surveys through the 1999-2000 school year. Additional information is derived from district data on the schools during the 1996-1997 school year and before to provide a "baseline" description of the NAS sites in terms of their performance on district mandated tests and information about school demographic characteristics (e.g., poverty and racial-ethnic composition). By "baseline," we mean that point in time before the NAS designs started implementation in the schools.

The main sets of questions addressed in the chapters that follow include:

Baseline Description:

- What are the demographic and performance characteristics of the schools design teams began assisting at the beginning of scale-up?
  - Are NAS sites advantaged or "elite" sites in terms of their school performance and demographic characteristics?
  - How do the NAS school climates compare to the nation as a whole?

Status of Implementation

- What is the status of implementation as of the 1996-1997 school year?
- Are schools implementing critical components of the NAS designs?
- What factors promote the implementation of various program elements?

Teacher Support and Reported Effects

- How supportive are teachers of the NAS designs in their schools?
- Based on teacher judgements, what are the effects of the designs on teachers' professional growth and student achievement and engagement?
- Are teacher background characteristics -- such as gender, race-ethnicity, educational background, age, or experience - related to support and perceived effects on students and teachers?
- Are school demographic characteristics and implementation factors related to support and teacher reports about the effects of the design in their school?

ORGANIZATION OF THE REPORT

Section 2 provides further information about RAND's research and its longitudinal sample of NAS schools. Section 3 describes the sample and the measures used in the analysis. Section 4 describes the NAS schools in terms of their demographic and climate characteristics. We also summarize their achievement levels during the baseline year to gain a better understanding of what the NAS schools were like before the designs began assisting them. In section 5, we summarize our descriptive analyses on a wide variety of implementation factors to better understand implementation early on during the scale-up phase. In Section 6, we analyze factors related to an overall implementation index and how these factors differ by the NAS designs. These factors include teacher background characteristics, school demographics, and factors related to the process of implementation. In Section 7, we examine relationships to teacher-reported support and early effects of the designs on teachers and students. Finally, we discuss the implications of our findings and describe our future research. A description of the history of the NAS initiative and the design teams appears in Appendix A.

2. FRAMEWORK FOR EXAMINING DESIGN IMPLEMENTATION

Within a NAS strategy that emphasizes both bottom- up and top-down reform, implementation is shaped by a variety of complex social, political, and economic factors. This chapter highlights some of these factors that are part of our ongoing analysis. We begin by discussing the main focus in this report -areas of school restructuring that the NAS designs address when assisting schools in the transformation process. Our framework also includes several factors -- related to students, teachers, schools, parents, and jurisdictions -- that are likely to be associated with implementation of whole-school designs. Finally, we discuss how implementation of critical design elements is likely to mediate the influence of these factors on students' and schools' levels of academic achievement and engagement.

KEY DESIGN TEAM ELEMENTS

Each design has unique features, but each tends to focus on changing schooling activities related to

- organization and governance;
- teacher professional life;
- content and performance standards;
- grouping arrangements;
- instructional strategies; and
- involvement of parents and community.[1]

Figure 2.1 depicts these areas as critical design elements, which in turn, are implemented within schools with the design-based assistance that teams provide. Each of these areas are discussed in the sections that follow.

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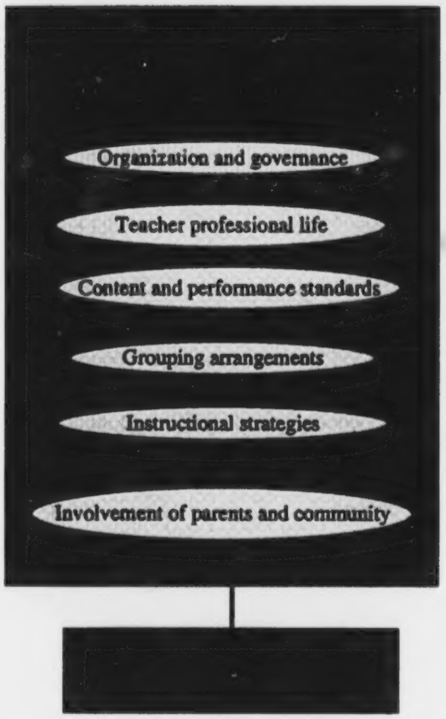
[1] See Appendix A for a more complete description of each design according to these areas.



Organization and governance
Teacher professional life
Content and performance standards
Grouping arrangements
Instructional strategies
Involvement of parents and community

Figure 2.1. Key NAS Design Elements Supported by Design-Based Assistance

Over time, the NAS design teams have learned that the design itself is not sufficient for school change. Rather, designs need to be coupled with *design-based assistance* - the commitment of the designs to provide a variety of services to further implementation of the design and assist in transforming the entire school. For example, NAS design teams provide ongoing assistance through materials, professional development, and local and outside experts to help articulate the school's vision, mission and goals; guide the instructional program on the school; shape the selection and socialization of staff; and establish common expectations for performance, behavior, and accountability among students, teachers, and parents. Because NAS believes that most schools benefit from focused, strategic assistance in implementing a design, it now feels its most important accomplishment has been support and development of design-based assistance

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organizations. Thus, the base of Figure 1.2 is the design-based assistance provided by the teams.

In the chapters that follow, information from teacher surveys are used to describe the degree of implementation of the designs in these areas. The purpose of these descriptions is to provide information about the status of implementation in the schools in the RAND sample relatively early in the implementation process. Over time, RAND will continue to monitor changes in these measures both within and between schools. To a great extent these implementation indicators are important intermediary school performance outcomes. That is, they can be examined as "dependent variables" in and of themselves, even though they are also independent measures that are likely to influence student and school performance outcomes. Even so, design elements need to be implemented before school performance trends can be positively affected (Bodilly, 1998; Berman and McLaughlin, 1975).

As time progresses, we would expect the designs to deepen the levels of implementation. That is, we would expect the average levels on our measures to increase for each school over time. Moreover, we expect that the variation within a school among teacher reports of implemented activities would decrease over time as a design's vision and activities are adopted and embraced by all teachers within the school. Thus, it is important to describe the various indicators of these broad categories of activities to better monitor the progress of schools over time. (See Appendix B for specific explanation of these design indicators.)

Organization and Governance

Organization and governance refers to the authority relations among the various parties in the school. An example of changing governance arrangements is reorganizing the decision-making processes for budgets and staffing to include teachers and other school employees and parents. Giving authority to the school site has received a great deal of attention in the education community. According to Murphy (1992) the central focus on governance restructuring stems from a belief that change must reside with those who are closest to the learners (see also Bryk et al., 1998). NAS and many of the designs strongly share this belief.

Thus, on our teacher survey we included items about the extent to which the following statements described the teacher's school:

- Teachers and others share in school decision making and governance; and
- This school has the authority to make budget, staffing, and program decisions.

Teachers could respond with answers that ranged from "does not describe my school" (scored a 1) to "clearly describes my school" (scored a 6).

Teacher Professional Life

The professional life of teachers refers to the roles and relationships in which the teachers participate during the school day. In effect, when referring to restructuring schools, particularly those in poor, urban areas, this involves overhauling the conditions under which teachers work by changing their responsibilities and tasks and by developing a more professional culture in schools (Murphy, 1991; Sykes, 1990, Wise, 1989).

In contrast to teachers working in isolation without contact with their colleagues (Lortie, 1970), designs aim to build a collaborative environment for teachers. We asked teachers questions about the extent to which they collaborated with colleagues - ranging from generally sharing in professional development activities and common planning time to critiquing each other's instruction, perhaps even with teachers from another school.

Specifically, teachers reported the degree to which the following statements described their school (a six-point scale ranging from "does not describe my school" to "definitely describes my school":

- Teachers are continual learners and team members through professional development, common planning, and collaboration;

- There are formal arrangements within the teacher's school providing opportunities for teachers to discuss and critique their instruction with each other; and
- Most teachers in this school meet regularly with teachers in other schools to observe and discuss progress toward DT goals.

Content and Performance Standards

Each of the designs aims to bring all students to high standards, even though each may differ in the process for this attainment. To monitor whether designs are making progress toward this end, we ask teachers about performance expectations in the school. For example, are student assessments explicitly linked to academic standards? Are performance expectations made explicit to students, so they can track their progress over time? Are student assessments explicitly linked to academic standards? Have consistent and coherent curriculum and performance standards been established across the K-12 feeder pattern? Are students monitored according to annual performance targets established by the school?

Presented to teachers as statements (see Appendix B), teachers could respond with answers that ranged from "does not describe my school" (scored a 1) to "clearly describes my school" (scored a 6). Because these items were highly correlated, we combined them (alpha reliability of .78).[2]

Grouping Arrangements

How students are grouped for instruction and the effects of this on student achievement is strongly debated among educators and researchers (see Slavin, 1987, 1990; Gamoran and Berends, 1987; Oakes, Gamoran, and

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[2] Cronbach's alpha coefficient is the most popular reliability coefficient in social science research (see Bollen, 1989, pp. 215-218). It is a coefficient ranging between 0 and 1 that summarizes the linear summation of related measures based on their intercorrelations. Coefficients closer to 1.0 indicate greater reliability. While there are a myriad of other data reduction techniques, we rely on the linear summation and Cronbach's alpha to preserve the original scaling of the measures and to allow for easy replication.

Page, 1992; Hallinan, 1994; Oakes, 1994). Yet, most agree that alternatives to inflexible grouping arrangements are worth further exploration. Thus, the NAS designs have experimented with such alternative student groupings. For example, students within an ELOB or Co-NECT design may have the same teacher for a couple of years. RW emphasizes flexible uses of grouping by organizing students according to their achievement levels in reading for part of the day and mixing achievement levels for other subjects. These groupings are assessed every eight weeks or so to see if students would be better served by being placed in a different group.

Each of the designs is sensitive to the issue of ability grouping and is working with schools to group students in more effective ways. To monitor the extent to which designs are experimenting with alternative grouping arrangements, we asked teachers the extent to which the following statements described their school (a six-point scale):

- Student grouping is fluid, multi-age, or multi year; and
- Students are organized into instructional groups using block scheduling for specific curricular purposes.

Instructional Strategies

Most of the designs are concerned with shaping student experiences within classrooms to further their academic achievement growth. Towards this end, designs aim to provide different learning opportunities that contrast with the conventional classroom in which teachers talk at students and fill their heads with knowledge; and students respond with the correct answers at appropriate times (see Sizer, 1984; Powell, Farrar, and Cohen, 1985).

NAS designs embrace alternative instructional strategies that involve different relationships between teachers and students and between students and subject matter. Yet, again, each design differs somewhat in the specific nature of these activities. While our surveys can only monitor such changes in instruction with broad strokes, we do ask teachers about instructional strategies that are critical aspects incorporated into the different designs.[3] For example, are students engaged in project-based learning for a significant portion of the school day? Are they asked to frequently revise their work toward an exemplary final product? Are students required to make formal presentations to exhibit what they have learned before they can progress to the next level? Do teachers develop and monitor student progress with personalized, individualized learning programs? Is the scope and sequence of the curriculum organized into semester long themes? Are field trips and guest speakers frequent and specifically related to the curriculum? Statements for each of these questions were included on our teacher survey. We found that these items were very highly correlated. For the sake of parsimony, we combined them (alpha reliability was .86).

Involvement of Parents and Community

Conventional wisdom suggests that the parent-child relationship and parent involvement in the child's education are critical components to school success. The NAS designs have embraced this issue as well. Several of the designs aim to have individuals or teams within the schools that serve as resources to students and families to help integrate the provision of social services to them (e.g., ATLAS and RW). Other designs emphasize students applying their learning in ways that directly benefit the community (e.g., AC, ELOB, and NARE). Of course, each design desires that parents and community members be involved in positive ways in the educational program. Therefore, we asked each teacher the extent to which the following described their school:

- Students apply their learning to the community; and
- Parents and community members are involved in the educational program.

FACTORS RELATED TO IMPLEMENTATION OF KEY DESIGN TEAM ELEMENTS

A wide variety of factors, external and internal to the school, have an impact on implementation of school reforms, particularly those aimed at restructuring entire schools such as the NAS designs. Such factors include:

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[3] More specific information about changes in classroom instruction related to the NAS designs will be provided in our longitudinal study of fourth grade teachers in San Antonio, TX.

- Student social background characteristics, preexisting performance, and readiness for schooling;
- Teacher background characteristics;
- School context (i.e., demographic characteristics)
- Parent and community demand, readiness, and support for changes in schooling activities; and
- Jurisdiction environments and whether they are effective, focused, and supportive (both financial and social) of scaling up school designs (see Figure 2.2).

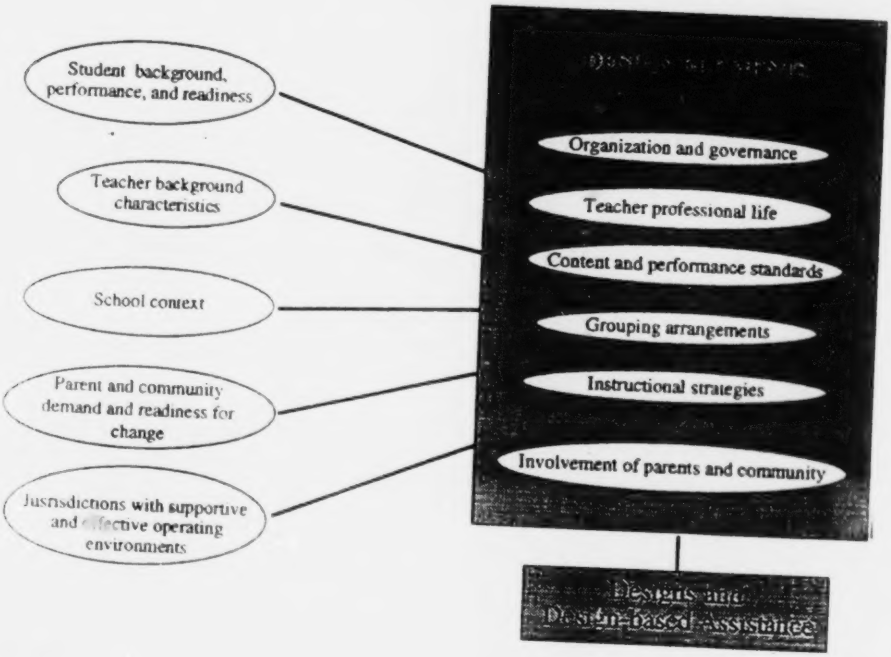
Student background, performance, and readiness
Teacher background characteristics
School context
Parent and community demand and readiness for change
Jurisdictions with supportive and effective operating environments
Organization and governance
Teacher professional life
Content and performance standards
Grouping arrangements
Instructional strategies
Involvement of parents and community
Designs and Design-based Assistance

Figure 2.2. Factors Related to Implementation

Student Social Background and Prior Performance

A critical factor that affects implementation of school restructuring efforts and their effects is student background performance and readiness. Within school reform efforts, it is important to understand how changes in schooling activities are related to students' social background characteristics, their home environments, mobility patterns between schools, and their preexisting levels of academic achievement, attitudes, and engagement in school. While policymakers focus on the "lever" at the school level to manipulate to improve learning opportunities and performance, several studies have shown the importance of student background in the learning process (see Coleman et al., 1966; Jencks at al. 1972; Gamoran, 1987, 1992; Bryk, Lee, and Holland, 1993).

Thus, a critical aspect of this report is to present a baseline description of the schools in terms of their climate and achievement characteristics *before* they began implementing a NAS design. To

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understand the progress of these schools over time, it is critical to understand where they started.

Teacher Background Characteristics and Readiness

Teacher background and readiness is also an important factor that influences implementation of the NAS designs. Teachers' gender, racial-ethnic background, education, age, and experience may all shape their capacity to implement designs that challenge conventional wisdom. Each of these characteristics is examined in the sections that follow.

Without willing and able teachers and a principal that embraces reform and provides the necessary leadership, no reform can be enacted, no matter how effective it may be. If there is a great deal of turnover among the teaching staff or if the principal leaves the school in the middle of implementation, the implementation of a design in the school may be strongly inhibited, if not altogether stopped. So too, if a teaching staff does not fully embrace the need for reform and actively engage in the design activities, the design will be poorly implemented. For example, in their study of several restructured schools, Muncey and McQuillan (1991) observed that, despite the widespread claims that schools need to be fundamentally changed because they are failing American youth, most of the teachers they studied saw neither the need for change nor the desirability of change. Even in schools that were strong candidates for change (e.g., schools with poor attendance, high dropout and failure rates, and low test scores), there was little agreement that restructuring was necessary.

Therefore, we gathered information on such factors - e.g., teacher background characteristics and attitudes, perceptions, support and turnover - to understand how implementation of key design team elements are affected by them.

School Context: Demographics

School context plays a critical role in the education of our youth. While several school characteristics have been examined over the years, several stand out and are examined in our analysis - socioeconomic and racial-ethnic composition, school size, and school level (i.e., elementary versus secondary). Research has shown that a school's socioeconomic (SES) composition is significantly related to achievement. Schools with more students from high SES backgrounds tend to have higher achievement levels (Coleman et al., 1966; Jencks et al., 1972; Bryk et al., 1990). Moreover, research has also shown that the achievement of minority students is higher in racially integrated schools, but the net effect of the school's minority composition on achievement is not as strong as the individual student's race-ethnicity. Long-term effects of school desegregation also show generally positive results for minority students (Wells, 1995). Several studies have shown that students learn more in smaller schools than in larger ones, but not all the evidence points in this direction. For instance, larger schools may offer more learning opportunities for students because they offer more courses and activities allowing students to find a niche that meets their needs. The downside of large schools is that they may be bureaucratic and impersonal, leading to students feeling isolated and alienated. Finally, research has shown that implementation of school-wide designs is greater in elementary schools than in secondary schools (Bodilly, 1998; Datnow and Stringfield, 1997).

School Context: Implementation Factors

In addition to these school demographic characteristics, there are other school factors related to the implementation of NAS designs. For example, how a school chooses a design and team to partner with, the knowledge teachers have about the design, and the resources available are crucial in promoting implementation. Early on during scale-up, NAS developed an "ideal" process for this matching to occur. Ideally, schools would have ample time to consider designs. Designs would present their design at a "design fair" attended by groups from all schools in a district. This would be followed-up by design team visits to interested schools and school teams visits to design demonstration sites. School staff would vote on whether they wanted to adopt a design after they were fully informed and understood the level of resources needed for implementation.

Overall, in her comparative case studies of 40 schools, Bodilly (1998) found the process of matching a design team to a school did not follow this idealized process. The process actually implemented in 1995 was often rushed and confused. This was due to the newness and the uncertainty of the effort--no one had done this before--and the strict deadlines NAS imposed to ensure scale-up began in the fall of 1995.

We asked teachers whether they voted to implement a design, and if they did so, what percentage voted in the affirmative to implement. Through our teacher surveys we are monitoring teachers' degree of familiarity with the design and whether the design team clearly communicated its program to staff so that it could be well implemented.

RAND's teacher surveys also ask the degree to which teachers support the design being implemented in their school. For monitoring resource support, we ask teachers a series of questions about the availability of materials to describe program and support instruction; professional development; time for planning, collaboration, and development; staff or consultants to mentor, advise, and provide ongoing support; and funds and funding flexibility to support implementation of major elements of the designs.

Parent and Community Demand and Readiness

Parent and community demand for reform, their readiness for it, and their ongoing support of it has important ramifications for implementation. One of the main obstacles to implementing a variety of restructuring efforts vis-a-vis the educational bureaucracy may be that many do not see the need for change (Berends and King, 1994). These observations correspond to recent polls that show a large gap between how adults "grade" the nation's public schools versus how they grade the schools in their community. According to a recent Gallup Poll, twenty-two percent of those polled gave the grade A or B to the nation's public schools. In contrast, forty-six percent gave an A or B to the public schools in their community, and sixty-four percent gave an A or B to the school their oldest child attends (Rose, Gallup, and Rose, 1997). The percentage of parents giving their child's school a grade of A or B has declined somewhat since the early 1990s (see Elam, Rose, and Gallup, 1991). Without a perceived need for change, efforts to reorganize the nation's schools may be severely hindered (see also Jennings, 1996, 1998).

Due to resource constraints, RAND is not monitoring such support across all the sites in its longitudinal sample of schools. However, in cooperation with Cincinnati Public Schools, we are obtaining some information from a random sample of parents whose children attend a New American School. These phone survey data of parents include information such as whether parents have heard of the NAS design team in their child's school, whether they support it, and whether they think it has benefited their child. These results will be presented in subsequent reports.

Jurisdiction Environments

RAND research to date emphasizes the importance of jurisdiction operating environments. In order for designs and design-based assistance to be effective, a core set of features within a jurisdiction may be necessary, such as[4]

- An effective process within jurisdictions for matching schools with designs that can meet their local educational goals and needs.
- Resources within the jurisdiction necessary for schools to implement the designs, particularly in the first three years of implementation.
- Governance arrangements that provide authority to schools (e.g., budget and staffing) to implement the basic features of designs.
- A jurisdiction accountability and assessment system that portrays the meaningful academic progress of students and schools and does not directly conflict with designs team activities, assessments, and performance objectives.
- A set of organized professional development activities and procedures that are coordinated with those of design-based assistance.

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[4] See Glennan (1998) and Bodilly (1996, 1998) for further descriptions of effective operating environments.

While not the specific focus of this particular report, we mention jurisdiction environments here because they are a significant part of our ongoing research (see Bodilly, 1998; Bodilly and Berends, 1998). In future years, RAND will continue to interview key district staff to monitor changes in jurisdiction policy and support.

MONITORING SCHOOL ACHIEVEMENT AND ENGAGEMENT

Finally, as portrayed in Figure 2.3, the factors affecting implementation and the degree of implementation itself are expected to positively affect student outcomes. There are a wide variety of student outcomes that schools seek to influence. In our ongoing analysis, we focus on student achievement and engagement.[5]

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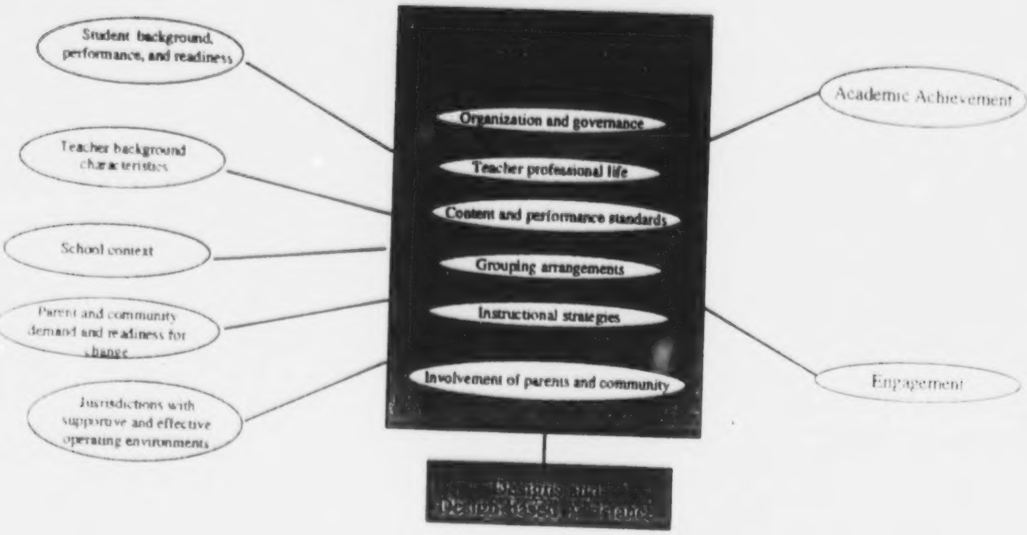
[5] With the continuing indicators that our students are low-performers in mathematics and science when compared to other industrialized societies, our society is likely to continue its emphasis on student achievement scores on standardized tests. For example, see the reports from the U.S. Department of Education on the recent release of the Third International Mathematics and Science Study (TIMSS) at http://nces.ed.gov/timss. Other critical educational outcomes worthy of examination include student engagement in educational activities, civic participation as students become members of a democratic society, educational attainment as students continue their pursuit of learning, and labor force participation as individuals leave formal schooling and find their place in the world of work.


Student background, performance, and readiness
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Parent and community demand and readiness for change
Jurisdictions with supportive and effective operating environments
Organization and governance
Teacher professional life
Content and performance standards
Grouping arrangements
Instructional strategies
Involvement of parents and community
Academic Achievement
Engagement

Figure 2.3. Framework for Understanding Implementation of Key Design Elements and Their Relationship to Student Outcomes.

The RAND research will gather information when available on school performance as measured by grade-level scores on district or state mandated tests.[6] While RAND will analyze the test score information it receives from jurisdictions, we will also monitor changes in other important proximal measures for student engagement - e.g., student attendance, continuation rates (grade level promotions and dropping out), and disciplinary incidents. Such indicators are important because students need to show up for school and behave appropriately if student learning is to occur. Moreover, as Coleman (1975) states, "…decision makers are not all concerned solely about cognitive achievement. A

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[6] A critical area of concern is that comparability of tests between jurisdictions and within jurisdictions over time is a problem. Different jurisdictions rely on different tests. Moreover, several of the participating jurisdictions have changed their tests since the beginning of implementation of the NAS designs. Despite some reluctance on the part of districts to share specific test score information not typically reported to the public, RAND will continue to work with participating jurisdictions to obtain test score information to track changes over time.

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number of outcomes are often more important to local school systems than grade-equivalent scores in reading achievement and a number of outcomes are often more important to parents and children" (p. 173).

While comparisons to district or state averages will be made, the schools will serve as their own controls when monitoring performance trends. That is, we will compare their performance in each year with their baseline performance in the year they adopted the design. Other comparisons are made whenever possible to district level averages, data from other evaluations within the same jurisdiction or state, and national averages for selected survey items.

3. DATA AND METHODS

In this section, we present the details of the RAND sample that will be analyzed over the next few years as we gather additional data for this longitudinal sample of NAS schools in eight jurisdictions. We discuss the target and attained samples, the response rates, the sources of data for the analysis, and the measures analyzed in the sections that follow.

A SAMPLE OF NEW AMERICAN SCHOOLS

The sample of schools consists of those schools initiating implementation of NAS designs in eight jurisdictions in either 1995-96 or 1996-97. These eight jurisdictions include

- Cincinnati;
- Dade;
- Kentucky;
- Memphis;
- Philadelphia;
- Pittsburgh;
- San Antonio; and
- Washington State.

The choice of these jurisdictions reflected both a desire to obtain a full range of designs and the judgment that the costs of working in the additional jurisdictions would not yield commensurate benefits. While jurisdictions and their support of the NAS reform will no doubt continue to change over time, these jurisdictions reflect a range of support for implementation - from a great deal to very little.

Our aim was to have a "census" sample of NAS schools within the jurisdictions selected. That is, we wanted to gather information from all the principals and teachers in these sites. Based on our conversations in late summer and early fall of 1996, NAS informed RAND that there were 256 schools implementing NAS designs across these eight jurisdictions. However, after further conversations with design teams, jurisdictions, and the schools the sample was reduced to 184 for several reasons. There were 51 Roots & Wings schools in Dade that were low-performing and on the verge of serious sanctions, so the district promised these schools that they would not be burdened with researchers. An additional 21 schools declined to participate because they did not want to be burdened with research, were not implementing, or dropped the design. For our surveys of teachers and principals, the target sample was 184 schools (see Table 3.1).

Table 3.1

Target Sample for RAND Longitudinal Sample Principal Interviews and Teacher Surveys.

		AC	ATLAS	CON	ELOB	MRSH	NARE	RW	Total
Jurisdiction	Cincinnati			5	5			6	16
	Dade	5		4	1	3		4	17
	Kentucky						51		51
	Memphis	5	5	5	5	4		9	33
	Philadelphia		12	4		2			18
	Pittsburgh						12		12
	San Antonio				8	5			13
	Washington		8				16		24
Total		10	25	18	19	14	79	19	184

Response Rates

Of the 184 schools, 94 percent of the principals responded to our phone interviews in the Spring of 1997 - an excellent response rate. Our teacher response rates were also very good; 68 percent of the teachers responded to our surveys. Among the 184 schools, 164 (or 89 percent) had at least five teachers fill out a survey. There were 155 schools (84 percent) that had complete information from principals and teachers. RAND will continue to monitor and report on this sample through the 1999-2000 school year. Table 3.2 shows the sample sizes and response rates for the principal phone interviews and teacher surveys.

Of the 184 schools, we received completed phone interviews and teacher surveys for 155 schools in the spring of 1997. However, not all of these schools were actually implementing. Twenty-five of the 155 principals informed RAND that they were not implementing the NAS design in their school as of April-May 1997. Rather, these principals reported that they were exploring the design and haven't committed as yet or the school was in a planning year (i.e., the school partnered with a design team but was planning implementation in the fall of 1997.

Table 3.2

Sample Sizes and Response Rates for NAS Principal and Teacher Surveys in 1996-1997

	Number of Responding Schools	Response Rate
Principal Interviews	173	94%
Schools with More than Five Teachers Responding	164	89%
Schools with Both Principal and Teacher Surveys	155	84%
Implementing Schools with Both Principal and Teacher Surveys	130	71%
Number of Teachers Responding within the 130 Implementing Schools	2,525	68%

Because this report examines a number of questions related to implementation, we wanted to analyze only those schools that were *actually implementing a NAS design*. It is in these schools that the cross-sectional data is most enlightening. Therefore, the 25 non-implementing schools were dropped from the final analyses presented in the following sections. During exploratory analyses, we did examine the full 155 school sample for which we had complete information from principals and teachers. As expected, these latter analyses revealed that the non-implementing 25 schools had lower levels of implementation on the indicators examined here.

The distribution of 130 NAS schools by design and jurisdiction appear in Table 3.3.[7] Because the resulting sample of principals and teachers within the 130 implementing schools is not balanced by design or jurisdiction, we conducted a number of preliminary analyses to explore differences by design and by jurisdiction. Because one of the main concerns of this report are to describe the level of implementation in the NAS sample, we provide not only overall sample averages for the measures analyzed, but also we discuss differences among the designs to better understand the progress of implementation early on during the scale-up phase and to set the stage for monitoring the progress of these schools over time.

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[7] Of these 130 schools, 83 are elementary schools (64%), 18 are middle schools (14 percent), 17 are high schools (13 percent), and 12 schools (9 percent) contain some mix of grade levels (e.g., K-8, or 8-12). Nationwide, about two-thirds of the schools are elementary schools, one-fifth are middle schools, and one-tenth are high schools. Thus, the distribution of implementing sample of schools by grade level is fairly close to the nation as a whole.

Table 3.3.

Sample of 130 Implementing NAS Schools with Data from Principal Interviews and Teacher Surveys.

		AC	ATLAS	CON	ELOB	MRSH	NARE	RW	Total
Jurisdiction	Cincinnati			5	5			6	16
	Dade	4		3		2		3	12
	Kentucky						28		28
	Memphis	5	4	5	5	4		9	32
	Philly		6	1		1			8
	Pittsburgh						2		2
	San Antonio				8	3			11
	Washington		7				14		21
Total		9	17	14	18	10	44	18	130

DATA

Data for this study are obtained from several sources: principals, teachers, publicly reported district data, and key policy documents provided by NAS, the designs, and districts. The principal phone interviews took about 45 minutes to complete and helped us better understand the support and barriers to reform as well as principal attitudes and perceptions toward the designs in their school. These interviews included predominantly structured questions with specific response formats. However, we also included some open-ended questions about resource support, professional development, assessments, and other issues related to implementation of NAS designs to allow principals to elaborate on their responses.

The teacher surveys were administered in the spring of 1997 to all regular classroom teachers in the schools. The surveys were mailed to schools, and school staff distributed the confidential envelopes with the teacher surveys to each classroom teacher in the school. The surveys took about twenty minutes to complete. After completing the surveys, teachers sealed their questionnaire in an envelope and returned it to the designated person in the main office. This designate then mailed the surveys back to RAND. If time permitted, RAND resurveyed schools with low response rates.

District data was also provided to RAND. This information is what districts typically disseminate to the public, although in some instances districts have been very cooperative in providing more specific school information, particularly related to student assessments (e.g., Kentucky and San Antonio). Districts vary dramatically in the kinds of information they gather on schools and the ways they portray these to the public. District data on schools include test scores, demographics (e.g., poverty and racial-ethnic composition), promotion rates (e.g., grade retention and drop out rates), and other information about students and schools (e.g., behavioral problems or at-risk categorization).

IMPLEMENTATION MEASURES

One focus of this report is to describe the level of implementation according to a wide variety of indicators and analyze factors related to different levels of implementation. Moreover, we examine teacher support and teacher judgements about the effects of the designs in their schools on their professional growth and student engagement and achievement. We also analyze factors related to teacher support and perceived design effects.

Design Elements

As discussed in Chapter 2, a major focus on this report is to present findings about the early implementation levels of the 130 implementing NAS schools with a wide array of indicators. Each of these indicators is based on the school aggregates of teacher survey responses in the 130 implementing schools. Teachers could respond with answers that ranged from "does not describe my school" (score a 1) to "clearly describes my school" (scored a 6). These indicators are portrayed by design team in the chapters that follow to better understand early implementation, so the schools' progress can be assessed as additional data are obtained from the teachers and principals in these schools in upcoming years.

To repeat the design implementation elements presented in Chapter 2, we describe the schools according to the following list of indicators, as categorized by broader areas of school restructuring:

Organization and Governance

- School authority to make decisions about budget, staffing, and programs.
- Shared decision making among school staff.

Teacher Professional Life

- Teachers are continual learners and team members.
- Teachers meet to discuss and critique instruction.
- Teachers meet with other teachers from other schools to discuss implementation progress.

Content and Performance Standards

- Performance expectations index.

Instructional Grouping Arrangements

- Alternative grouping arrangements.
- Block scheduling for specific curriculum purposes.

Innovative Instructional Strategies

- Instructional strategies index.

Involvement of Parents and Community

- Students apply learning in ways that directly benefit the community.

In addition to all of these indicators within each of the different areas of organization and governance, the professional life of teachers, content and performance expectations, instructional strategies, and parent and community life, we examined an overall summary measure of implementation that combined selected measures analyzed above. This measure is a summative index of the measures for instructional strategies, performance expectations, alternative student grouping arrangements, teacher collaboration and common planning time, and students apply their learning in ways that directly benefit the community.

This summary measure fits the data for the 130 implementing NAS schools very well. Statistical tests show that these indicators can be combined into an underlying measure whether based on a summary measure for the intercorrelations of the these measures at the school level or on a more stringent test that examines how well these indicators fit an underlying construct.[8]

Teacher Support for Designs and Teacher Judgments about Design Effects

In the analyses discussed in chapter 7, we focus on three dependent variables:

- Teacher support for the NAS design in their school.
- Teachers' reports about the effects of the design effects on their professional growth.
- Each teacher's judgement about the effects the NAS design on his/her students' achievement, engagement, and enthusiasm in school.

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[8] The alpha reliability of this index is .87. Because we wanted to empirically test whether an underlying construct of implementation fit the data for the 130 implementing schools, we conducted a more stringent test than the popular alpha reliability estimate. Using structural equation modeling, we estimated a measurement model with one underlying construct and these five indicators. Estimated in LISREL (Joreskog and Sorbom, 1996), this model fit the data very well ($\chi^2 = 4.73$ with 4 degrees of freedom, $p = .32$) after allowing for the intercorrelation of the error terms for the instructional strategies and applying learning to community indicators. For a discussion of this method, see Bollen (1989) and for recent educational applications, see Berends (1995) and Gamoran et al. (1995)

Support

Support for the NAS design was measured by asking teachers how strongly they supported or opposed the NAS design team in their school. Teachers could respond on a five-point scale, ranging from -2 indicating strong opposition to +2 indicating strong support.

Teachers reported that they supported the NAS design being implemented in their school during the 1996-1997 school year. Table 3.4 reveals that the average for the NAS sample of over 2,500 teachers in the 130 implementing schools was .78 on a scale that ranged from -2 to +2. A zero indicated no support. But teachers also varied quite a bit in their support as revealed by the large standard deviation (SD) of 1.15.

Table 3.4.

Descriptive Statistics of Dependent Variables.

Variables	**Mean**	**SD**
Dependent Variables for Teachers (n=2525)		
Support for Design (range -2 to +2)	0.78	1.15
Teacher Professional Growth (range -3 to +3)	.67	1.47
Student Achievement & Engagement (range -3 to +3)	.34	1.35

Effects on Teacher Professional Growth

Teachers were also asked about the extent to which the NAS designs affected their professional growth during the 1996-1997 school year. Teachers responded on a scale from -3 indicating a strong negative effect to +3 for a strong positive effect. A zero indicated no effect.

When assessing the impact of the NAS design in their school on their professional growth, teachers reported small positive effects. Table 3.4 shows the average for the NAS sample of teachers was .67 on a scale ranging from -3 to +3. A zero indicated no effect. Similar to teacher support, there was variation around this mean as shown by the SD of 1.35.

Effects on Student Achievement and Engagement

Effects on student achievement and engagement was a composite that combined teacher judgments about whether or not the design team had positive or negative effects during the 1996-1997 school year on the teacher's students' (1) achievement; (2) engagement in learning; and (3) enthusiasm for learning. Again, teachers could answer on a scale from -3 to +3. Rather than examine achievement, engagement, and enthusiasm separately, they were combined because they were so highly correlated. Their correlations ranged from .86 to .89, and the alpha reliability for the combined index was .95.

Teachers' judgements about the effects of the NAS design on their students indicated slight positive effects. When combining teacher reports about the impact of the design on student achievement, engagement, and enthusiasm, the mean for teachers' assessments was .34 - only slightly positive on a scale that ranged from -3 to +3 (see Table 3.4).

SCHOOL IMPLEMENTATION FACTORS

Many factors are related to implementation. In the analyses that follow, we consider several that others have shown are important for implementing the NAS designs (see Bodilly, 1998; Datnow and Stringfield, 1997; Stringfield and Datnow, 1998). These include the experience schools have with implementation (i.e., the number of years school has been implementing), teacher familiarity with designs, whether a significant majority of teachers voted to implement, clear communication by designs to help implementation, and availability of resources (see Table 3.5). We analyze whether these factors are related to the overall implementation index. In addition, we examine whether the school implementation factors are related to the dependent measures of teacher support and perceived effects of designs on teacher professional growth and student achievement and engagement.

- *Years Implementing* is number of years the school has been implementing the design with a range from 1 to 3. On average, schools are completing their second year of implementation.
- *Vote* is a dummy variable equal to one if 60% or more of teachers actually voting to implement design (variable equal to 0 otherwise). Almost two-thirds of the schools had such a large percentage of teachers vote to implement.

- *Familiarity* is a standardized (0,1) score measuring a schools familiarity with design (based on aggregated teacher responses). In addition, teachers are familiar with the designs being implemented in their schools. On a six-point scale ranging from not at all familiar (1) to very familiar, the mean response of teachers was 4.25.
- *Clear communication by designs to schools* is a standardized (0,1) score measuring the degree to which schools report that design teams clearly communicated their design so that it could be well-implemented (based on aggregated teacher responses). Teachers did not think that design teams clearly communicated the design to school staff so that it could be well implemented. On a six-point scale ranging from not all clear (1) to definitely clear (6), the mean was about a 4 - in the mid-range on this scale. This is consistent with the fieldwork findings of Bodilly (1998), who emphasizes the necessity of design team communication in the implementation process.
- *Resources Index* is standardized (0,1) score for teacher reports about whether the school had sufficient resources to implement the designs. Teachers could respond to several questions using a five-point scale ranging from "no resources are available" to "all are available." The resources index is a combination of a number of questions that asked the extent to which the teacher's school had the resources need to implement the major elements of the design, including
    - materials to describe the program;
    - materials to support instruction;
    - professional development for teachers;
    - time for planning, collaboration, and development;
    - staff or consultant to mentor , advise, and provide ongoing support;
    - technology;
    - and funds and funding flexibility.

  The alpha reliability of this scale is .92. When considering the school measure of resource availability (e.g., materials; professional development; time for planning, collaboration, and development; consultants to provide ongoing support; technology; and funding), the average for the resource index is 3.15. That is, a moderate amount of these resources are available to implement the major elements of the NAS design in their school.

Table 3.5.

Descriptive Statistics of School Demographic Characteristics.

Variables	**Mean**	**SD**
Years Implementing	1.89	.78
Percent of Schools with 60% or More of Teachers Voting to Implement	62	
Teacher Familiarity with Design (range 1-6)	4.25	.83
Clear Communication by Designs to Schools (range 1-6)	3.98	.89
Resources Index (range 1-5)	3.15	.51
Overall Implementation Index (range 1-6)	3.91	.60

TEACHER AND SCHOOL FACTORS

In the analyses that follow we examine several factors that are related to implementation, including teacher background characteristics, school demographics, and school implementation factors.

Teacher Background Characteristics

In the later sections of this report, we analyze several teacher attributes that may be related to implementation. These include:

- Gender;
- Racial-ethnic background;
- Educational degree (bachelor's vs. master's);
- Age; and
- Years of experience in the current school.

The descriptive statistics for these measures appear in Table 3.6 and discussed in the following paragraphs.

Most of the NAS teachers in our sample are female (83%) and white (71%) (Table 3.6). However, there are a large percentage of teachers who are African American (21%). The majority of teachers have continued their education past college; forty-three percent of the NAS teachers have only their bachelors degrees, and 57 percent have gone on to earn an advanced degree (M.A. or Ph.D.). Similar to the nation as a whole, the NAS sample is weighted toward the ages in the 40 to 50 range (see Kirby, Berends, and Naftel, 1998). Fifty-five percent of the teachers in this sample are in their 40s. Across the other age categories, the teachers are pretty evenly distributed. The average amount of time that NAS teachers report being in their current school is 7.4 years, although there is a wide range around this mean (i.e., SD is 7.3).

Table 3.6.

Descriptive Statistics of Teacher Background Characteristics.

Variables	**Mean**	**SD**
Gender %		
Female	83	
Male	17	
Race-Ethnicity %		
White	71	
African American	21	
Hispanic/Latino	6	
Other	2	
Educational Degree %		
Bachelors	43	
Masters or above	57	
Age %		
20-30	12	
30-40	15	
40-50	55	
50+	18	
Years Experience in Current School	7.42	7.29

School Demographic Characteristics

In addition to the characteristics of teachers, the analyses that follow also examine the NAS sites demographic characteristics and whether these are related to implementation. The following school demographic characteristics are examined in this chapter (see Table 3.7):

- *School poverty*: Our measures of poverty is based on the percentage of students in the school that participate in the free and/or reduced priced lunch program. While we examine school poverty as a continuous measure (ranging from 0-100%), we also created a dummy variable that equals one if 50 percent or more of the students within the school received free and/or reduced lunch (variable equal to 0 otherwise). On average, 54 percent of the students in the NAS sites examined here are poor. Fifty-five percent of the schools in our sample are high-poverty schools.

- *School minority composition*: The percentage of students within the school who are classified by the school districts as non-Hispanic white minorities is used to derive our measures of school minority composition. On average, 59 percent of the students within the NAS schools are from minority racial-ethnic groups. We also created a dummy variable that equals one if 50 percent or more of the students within the school are non-white (variable equal to 0 otherwise). Fifty-three percent of the 130 schools in our NAS sample are high-minority schools.
- *School Size*: Schools in our sample ranged from relatively small (less than 100 students) to quite large (over 2,500 students); the average size across the schools was 626 (SD = 403). We also examined a measure of school size equal to one if the school is small (i.e., 400 students or less) (variable equal to 0 otherwise). About one quarter of the schools in our sample are smaller schools.
- *School Level:* Most of the schools in the sample are elementary schools (64 percent). Fourteen percent of the 130 implementing schools are middle, 13 percent are high schools, and 9 percent are some type of mixed level school (e.g., grades k-8 or 6-12).

Table 3.7.

Descriptive Statistics of School Demographic Characteristics.

Variables	**Mean**	**SD**
Percent Poverty Continuous (1-100%)	54	31
Percent High Poverty (>50% Free Lunch)	55	
Percent Minority Continuous (1-100%)	59	37
Percent High Minority (>50% Minority)	53	
Size Continuous	626	403
Percent Small Size (< 400)	28	
Percent Elementary Schools	64	
Percent Middle Schools	14	
Percent High Schools	13	
Percent Mixed Level Schools (e.g., K-8; 8-12)	9	

ANALYTIC APPROACH

In the following chapters, we provide descriptions of the NAS schools early on in the implementation process. We describe the 130 schools according to our indicators of the areas of governance, teacher professional life, performance expectations, grouping arrangements, instructional strategies, and involvement of parents and community. When making comparisons, we state whether the differences are statistically meaningful (i.e., difference of means tests).

We also conduct some multivariate analyses with a statistical technique that allows us to separate out the effects of schools and teachers within them on teacher support of designs and teacher judgments about the effects of the designs on their students' achievement and engagement. These methods are discussed in greater detail in Section 7 and in Appendix C.

In the next chapter, we describe the schools' demographic and performance levels during the 1994-1995 school year - before the designs were actually implementing in these sites. These descriptions help us address the question, what were schools like before the designs entered the door with their materials and assistance? Further descriptions in the next chapter are based on retrospective principal responses about school climate in the 1995-1996 school year which are compared to results from a national survey of schools.

4. THE TYPES OF SCHOOLS NAS DESIGNS ARE ASSISTING: BASELINE DESCRIPTION

This chapter addresses the following questions to provide a baseline description for the NAS schools in our sample: What are the school demographic and performance characteristics of the schools design teams began assisting at the beginning of scale-up? Are NAS sites advantaged or "elite" sites in terms of their school performance and demographic characteristics? How do the NAS school climates compare to the nation as a whole?

The unit of analysis is the school. While comparisons of design team elements are described across teams, one aim is to understand what the characteristics of schools were before the designs partnered with them. An additional aim is to understand implementation early on in order to better monitor the progress of the NAS schools over time. In this chapter, we first discuss the 130 schools in terms of their demographic characteristics - i.e., proportion of school in poverty and proportion minority. We then discuss these schools' climate characteristics (absenteeism, student readiness, and safety) and compare them to a national sample. Finally, we discuss the schools' performance levels before the designs began implementing by presenting the baseline performance data provided by district data records.

DEMOGRAPHIC CHARACTERISTICS OF SCHOOLS

The New American Schools designs are by no means assisting schools that could be considered "elite" when considering school poverty, racial-ethnic composition, or student achievement scores. In fact, the NAS sites in our sample are not even "average" when comparing a number of school characteristics to national norms.

For example, on average, 54 percent of the students within each of the implementing schools can be categorized as being poor (as measured by the percentage of students receiving free and/or reduced lunches).[9]

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[9] School poverty here refers to the percentage of students within a school that received free and/or reduced lunch meals. Because all students in San Antonio Independent School district receive free lunch,

About 40 percent of the nation's students receive free and reduced lunch.[10] Figure 4.1 reveals that most of the design teams are assisting schools with high concentrations of poor students.[11] For example, most of the eighteen Roots and Wings schools are assisting schools with over 80 percent of the students on free and/or reduced lunch.

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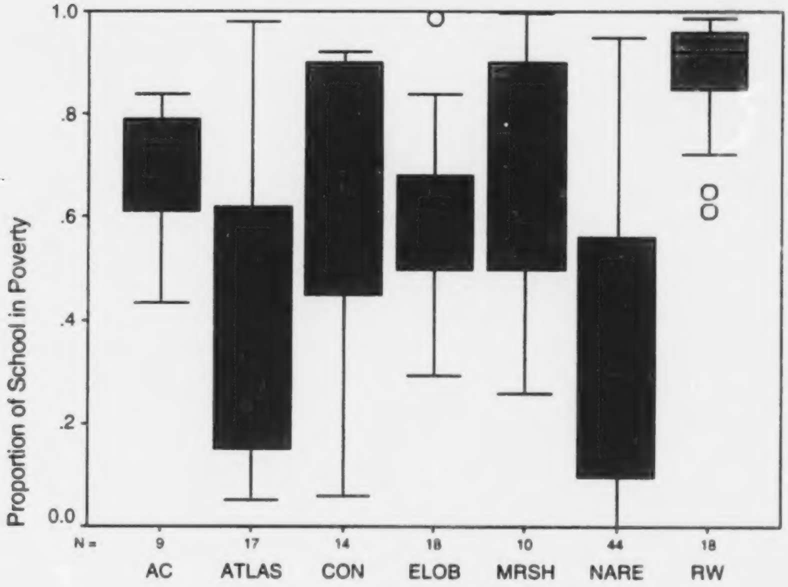
poverty there is measured as students within a school *eligible* for free and/or reduced lunch meals. In Philadelphia, free-reduced lunch information is not available, so the percent of students receiving AFDC benefits is used in its place. Reduced price lunch meals and AFDC are both indicators used for allocation of federal Title I funding under the 1994 Improving America's Schools Act (see American Association of School Administrators, 1995; http://www.ed.gov/legislation/ESEA). Currently, schools can use their Title I funding to improve the entire instructional program throughout the school if at least 50 percent of the students within the school are from poor families. (For a discussion of the 1994 Improving America's Schools Act see U.S. Department of Education, 1993; and Borman et al., 1996).

[10] Based on our own calculations from the 1994 NAEP Main Assessment files for fourth grade reading.

[11] Figure 3.1 is a box-and-whisker diagram to show the distribution of schools by school poverty composition and NAS design. In a box-and-whisker diagram, the line in the box is at the median value - half the schools fall above the line and half fall below. Each "box" captures the middle fifty percent of the schools. The lines, called "whiskers," at each end of the box show the range of scores for the upper and lower quartiles. Outlier schools are indicated by circles, and extreme outliers are indicated by asterisks.



N = 130 Implementing NAS Schools Mean = .54 SD = 31

Figure 4.1. School Poverty Composition in NAS Sites, 1994-1995

ATLAS and NARE are exceptions to the general pattern in that some of the schools these designs are assisting are non-poor schools in Kentucky and some affluent schools in Washington State. In fact, if the more affluent schools from the states of Kentucky and Washington are excluded, the school poverty composition of the NAS sample increases to 68 percent.

NAS sites in Cincinnati, Dade, and Memphis tend to be high-poverty schools. While Philadelphia is an exception, this is primarily due to the more stringent measure of poverty in this jurisdiction - percent of students receiving AFDC benefits.

On average, about 60 percent of the students in NAS schools are minority (non-white) (see Figure 4.2). About 35-40 percent of the nation's students are categorized as racial-ethnic minorities. If the Kentucky and Washington schools were removed from the sample, over 80 percent of the children in NAS schools would be minority. Thus, the NAS designs are assisting schools with disproportionately high percentages of minority students. While having a greater proportion of non-white students in a school may be advantageous for students in some respects, such a disproportionate number of minority students may also indicate problems associated with segregation in our society, especially our schools (see Orfield and Eaton, 1996; Armor, 1995; Wells, 1995; Crain and Mahard, 1982).

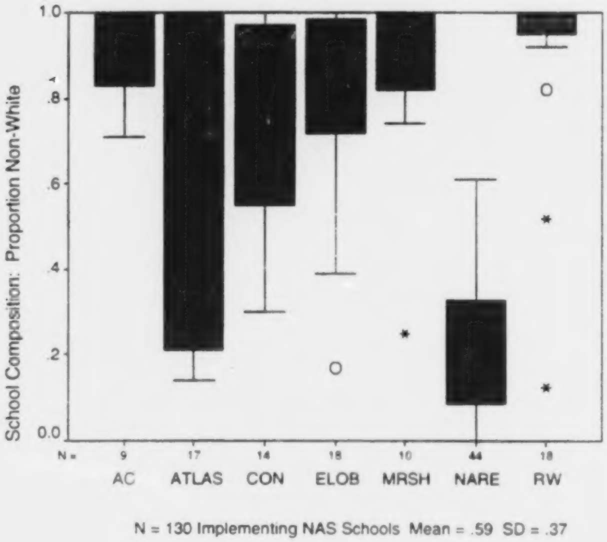


Figure 4.2. School Minority Composition in NAS Sites, 1994-1995

In short, whether considering school poverty or racial-ethnic composition, the NAS sites are not reflective of the nation. If fact, these indicators suggest the NAS designs may be facing some significant challenges related to school poverty and racial-ethnic segregation in these mostly urban schools.

SCHOOL CLIMATE: NAS SITES COMPARED TO NATION

How do the school climates in the NAS sites compare to the nation? In our surveys of teachers and principals, we included school climate items that we could compare to the nationally representative Schools and Staffing Survey of 1993-1994 (SASS) (U.S. Department of Education, 1996). Several composite scales for school climate were compared across the NAS and SASS data, including climate scales for absenteeism, school readiness, and safety.[12] In short, NAS principals reported greater problems with absenteeism and school readiness when compared to the nation's principals. NAS schools are similar to the nation in terms of perceived problems of school safety. The details of these comparisons follow. The important question that remains is, how will the NAS sites progress on these indicators over the next few years?

Absenteeism

NAS principals tended to report that their schools' absenteeism problems fell at the midpoint on a scale from 1 to 4, where 1 indicated a "serious problem" and 4 "not a problem." These reports about absenteeism in NAS schools were more serious when compared to the nation's schools. Figure 4.3 shows that the median of 2.5 in the 130 NAS schools was below the national median in the SASS data of 3.0, indicating that in the NAS sites absenteeism was perceived to be a greater problem.[13]

There is some variation among the designs on this absenteeism measure as well. The median of the Co-NECT and ATLAS sites are similar to the median in SASS. However, the median of the ELOB sites is well below the NAS median, which is less than the SASS median. When compared to the nation's principals, principals in ELOB sites report greater problems with absenteeism.

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[12] *Absenteeism* is a composite scale comprised of principals' perceptions of problems with student tardiness and absenteeism. Principals could answer with four responses, ranging from not a problem to a serious problem. The alpha reliability of this scale in the NAS data was .76 and in SASS .78.

School Readiness is a composite scale including principals' reports of problems with student apathy, lack of academic challenge, students come unprepared to learn, poor nutrition, and poor student health. The alpha reliability of this scale in the NAS data was .80 and in SASS .83.

Safety is a composite scale consisting of principals' reports about the degree of their school's problems with physical conflicts, robbery or theft, vandalism, student possession of weapons, and verbal abuse of teachers. The alpha reliability of this scale in the NAS data was .88 and in SASS .78.

[13] Only differences that are statistically meaningful (i.e., mean difference is statistically significant at p-level < .05) are discussed in this section.

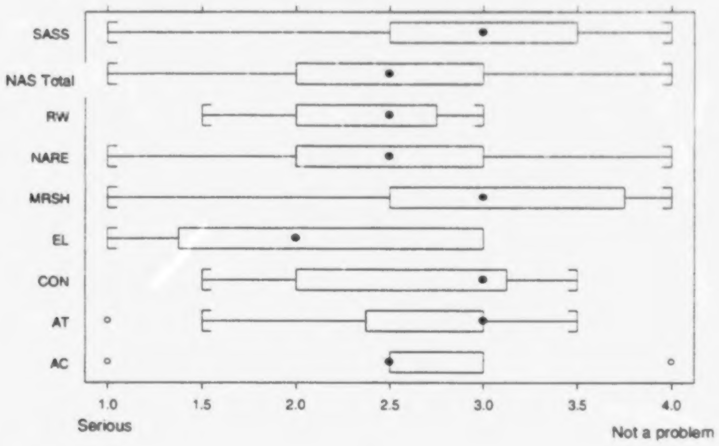

Figure 4.3. Principal Reports of Problems with Absenteeism in NAS Sites (1995-1996) Compared to Nationally Representative Schools and Staffing Survey (1993-1994).

School Readiness

School readiness was also perceived to be a greater problem in some of the NAS schools than the nation's schools (see Figure 4.4). Some of the design teams are in schools where the reported problems of readiness are more severe. For instance, the median for the Roots and Wings and the ELOB schools indicate that the schools these designs are assisting may be facing more challenges with students' readiness to learn. School readiness included principal reports about problems such as students coming to school unprepared to learn, poor nutrition, poor student health, student apathy, and lack of academic challenge.

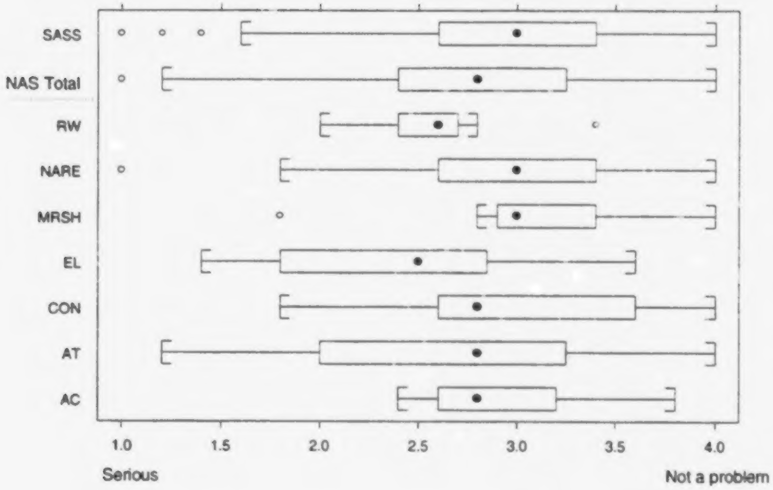

Figure 4.4. Principal Reports of Problems with School Readiness in NAS Sites (1995-1996) Compared to Nationally Representative Schools and Staffing Survey (1993-1994).

School Safety

School safety was not perceived by principals to be a greater problem in the NAS sites when compared to the nation's principals. The school medians for the SASS and the NAS sites were 4.4 (see Figure 4.5). There was no significant variation among the designs for this measure. Overall, even in the mostly poor, urban NAS schools, school safety is not perceived as a great problem.

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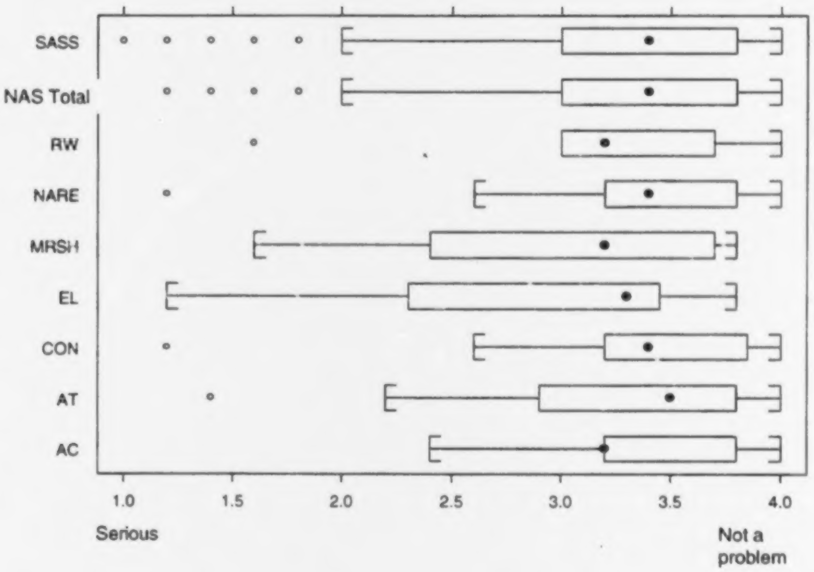


Figure 4.5. Principal Reports of Problems with Safety in NAS Sites (1995-1996) Compared to Nationally Representative Schools and Staffing Survey (1993-1994).

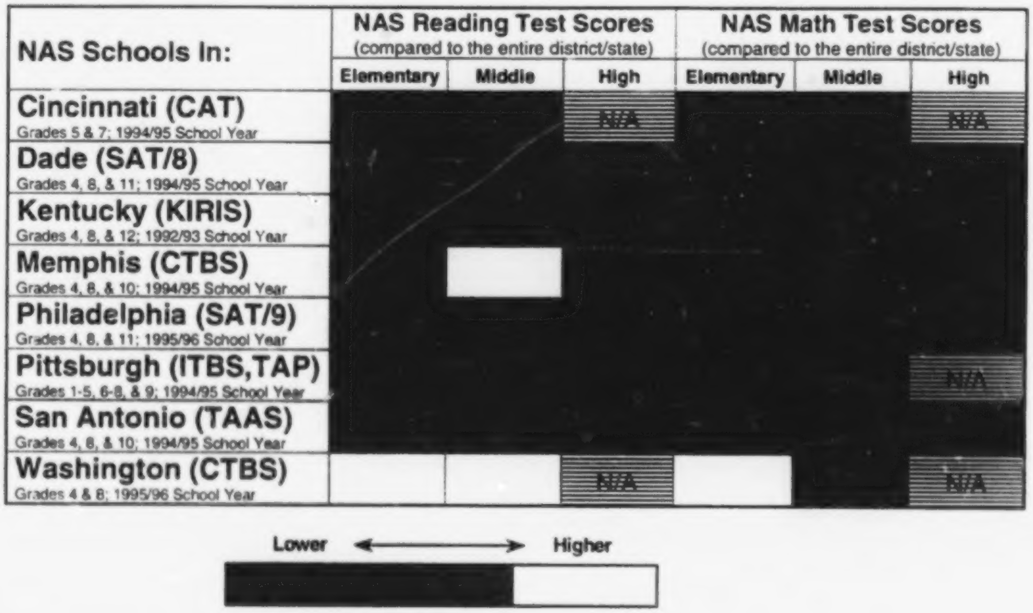
SCHOOL ACHIEVEMENT BEFORE IMPLEMENTION OF NAS DESIGNS

Understanding the progress of NAS sites, particularly in terms of their performance on achievement tests, requires an understanding of where the schools were before implementing a design.

What were the achievement levels of the schools before the NAS designs began providing materials, professional development, and other assistance? In general, the NAS sites were in low-performing, urban school districts. Within these districts and with few exceptions, the NAS designs began assisting schools that were scoring at or below the district average on the district or state mandated tests.

Rather than present each comparison by grade level and jurisdiction and test, we present a summary figure for the sake of parsimony. Figure 4.6 provides a summary of the many comparisons we made among grade levels and types of tests in the different districts. While over time, when the district data permit, we will monitor each schools progress on the district and state-mandated tests, this figure summarizes the test score levels of the 130 NAS schools. While the tests and the reporting of them to the public differ dramatically across the jurisdictions, we aimed to compare the NAS schools to the district averages and categorize them as scoring below (black in Figure 4.6), at (gray), or above (white) the district average. We classified the schools as above or below the district average if the schools were plus or minus .2 standard deviations on the grade level test scores if we had access to original test score data (i.e., Kentucky), or 5 percentage points if scores were reported as average percentile scores, or 7 percentage points if scores were reported as median percentile scores.

While we made other comparisons based on other cut points, our summary findings remained robust. That is, except for the NAS sites in Washington state and the state of Kentucky, the NAS sites in are in low-scoring urban school districts facing challenges of many of the nation's urban schools. Moreover, with few exceptions, the NAS sites within these low-scoring jurisdictions were scoring at or below the district test score averages before the NAS design began assisting these schools.



NAS Schools In:	NAS Reading Test Scores (compared to the entire district/state)			NAS Math Test Scores (compared to the entire district/state)		
	Elementary	Middle	High	Elementary	Middle	High
Cincinnati (CAT) Grades 5 & 7; 1994/95 School Year	■	■	N/A	■	■	N/A
Dade (SAT/8) Grades 4, 8, & 11; 1994/95 School Year	■	■	■	■	■	■
Kentucky (KIRIS) Grades 4, 8, & 12; 1992/93 School Year	■	■	■	■	■	■
Memphis (CTBS) Grades 4, 8, & 10; 1994/95 School Year	■	□	■	■	■	■
Philadelphia (SAT/9) Grades 4, 8, & 11; 1995/96 School Year	■	■	■	■	■	■
Pittsburgh (ITBS,TAP) Grades 1-5, 6-8, & 9; 1994/95 School Year	■	■	■	■	■	N/A
San Antonio (TAAS) Grades 4, 8, & 10; 1994/95 School Year	■	■	■	■	■	■
Washington (CTBS) Grades 4 & 8; 1995/96 School Year	□	□	N/A	□	■	N/A

Figure 4.6. Baseline Achievement Levels of NAS Sites Compared to District or State Averages on Standardized Tests Used in Accountability Systems

SUMMARY

The descriptive results for our baseline description of the 130 implementing NAS schools reveal the following:

- The NAS design teams are assisting schools with many challenges. For the most part, the NAS designs are being implemented in schools that are serving student populations that are disproportionately poor. These schools also contain large concentrations of minority students.
- When comparing the NAS school climate indicators to a national sample, we find that the NAS principals report greater problems with absenteeism and students' readiness to learn than the nation as a whole. In terms of school safety, the NAS sites do not differ from the nation's schools.
- During the baseline year - the year before the NAS designs entered the doors of these schools - the vast majority of the schools were in low-performing, urban districts. For the most part, except for schools in Washington State, the NAS designs entered schools that

were performing at or below the district average on the mandated tests administered in each jurisdiction.

In short, the NAS designs are not assisting advantaged or "elite" schools.

Whether designs and the assistance they provide to these challenged schools in these challenged districts improve the educational performance of students will be addressed in our future research.

5. STATUS OF IMPLEMENTATION

This chapter addresses whether schools implemented critical components of the NAS designs. Specifically, we focus on the status of implementation of the NAS designs as of the spring 1997. By the spring of 1997, some of the schools had been implementing for two years or more. We will address school and design team differences in terms of their experience and familiarity (among other factors) with the designs in the next Chapter. Here, to gain a broad understanding of implementation to set the stage for future analyses, we examine a wide variety of indicators of key design team elements as discussed in Section 2, including organization and governance, teacher professional life, performance expectations of students, instructional grouping arrangements, instructional strategies, and parent and community involvement.

PRINCIPAL REPORTS OF IMPLEMENTATION

When discussing the sample in Section 3, we mentioned that we obtained data from teacher surveys, principal phone interviews, and districts for 155 schools that were considered by NAS to be implementing a design. Because the focus of this report is on early implementation status and the factors that contribute to it, we are interested in those schools that are actually implementing designs.

Based on our interviews with principals in the spring of 1997, most of these schools were indeed implementing a design.[14] Yet, some were not. Figure 5.1 shows that twenty-five of the 155 schools (about

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[14] The first question we asked principals was about the status of the school's partnership with a NAS design. Principals could respond that they were in an exploratory year (that is, the school hasn't committed to a design yet); in a planning year (the school has partnered with a design team and is planning for implementation next school year) in initial implementation for part of the school (i.e., a subset of the staff is implementing); continuing implementation for part of the school; in initial implementation for the whole school (i.e., all or most of the staff are working with the design); or continuing implementation for the whole school.

15 percent) reported that they were in an exploratory year or a planning year with implementation expected in the future. About 85 percent (130/155) of the schools for which we had teacher, principal, and district data reported implementing a NAS design to some extent.

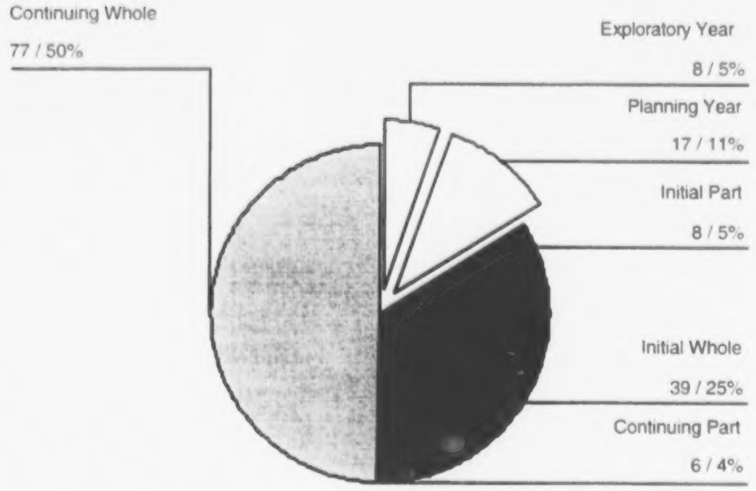

Figure 5.1. Principal Reports of Implementation Status, Spring 1997.

Because our interest is in understanding the specific activities that are occurring within the 130 schools that were implementing a NAS design to some extent (the non-white areas of Figure 5.1), the analyses that follow focus on these schools. The descriptive analyses that follow help us better understand the degree of implementation during the first couple years of scaling up the designs. They also provide information to set the stage for future analyses that will monitor the progress made by these schools. The indicators we examine are based on teacher reports that were then aggregated to the school level to provide a description of the 130 implementing NAS schools in our sample.

Most of the results that follow are portrayed with box-and-whisker diagrams to show the relative frequency of high and low levels of implementation on a particular indicator. We portray these indicators across schools by design team. In a box-and-whisker diagram, the line in the box is at the median value - half the schools fall above the line and half fall below. Each "box" captures the middle fifty percent of the schools. The lines, called "whiskers," at each end of the box who the range of scores for the upper and lower quartiles. Schools that are outliers are indicated by circles and extreme outliers are indicated by asterisks.

ORGANIZATION AND GOVERNANCE

A central focus in design team efforts is that decisions about changes should reside with those who are closest to students (see also Murphy, 1992). We asked teachers about whether their school had the authority to make budget, staffing, and program decisions and whether teachers shared in school decision making. Teachers answered these items on a scale from one ("this does not describe my school") to 6 ("this clearly describes my school").

In our sample, teachers tended to report that their schools had some authority to make decisions about budget, staffing, and programs, The mean across the 130 implementing NAS schools for this question was 4.39 with a standard deviation (SD) of .79. Figure 5.2 shows the distribution of the 130 schools for this indicator for each design team. For most of the designs, except ATLAS and MRSH, a large proportion of the schools fell between a 4 and 5 on the 6 point scale for this item. The mean differences between NARE and ATLAS or MRSH were statistically meaningful.[15]

Similarly, when considering the extent to which teachers report that shared decision making characterizes their school, the average level reported was about 4.32 (SD = .74). As shown in Figure 5.3, while some individual schools had much lower levels, most of the schools across the designs were not significantly different from one another in terms of teacher reports about shared decision making.[16]

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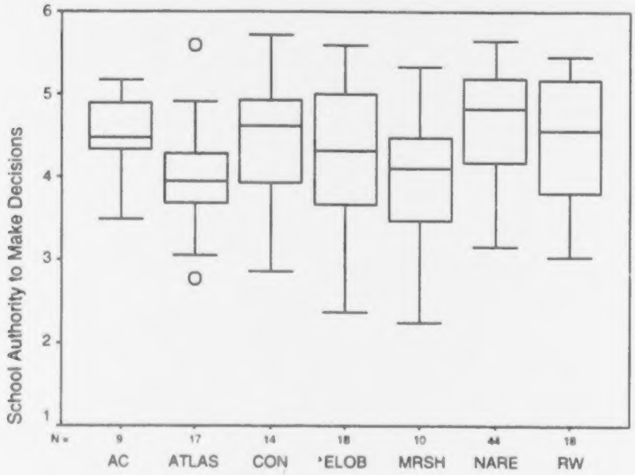
[15] "Statistically meaningful" here refers to the mean differences being significant at the .05 probability level or less. That is, there remains the possibility that, at most, 5 times out of 100 the mean differences would occur by chance alone. For example, in Figure 5.2, the mean differences between NARE (mean = 4.65, SD = .69) and ATLAS (mean = 3.99, SD = .68) and MRSH (mean = 3.96, SD = .87) were statistically meaningful.



N = 130 Schools; Mean = 4.39 SD = .79

Figure 5.2. School Authority to Make Decisions about Budget, Staffing, and Programs by NAS Design, Spring 1997

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[16] The number of schools for this figure is 118 because Dade County Public schools refused to allow RAND to ask several items on our teacher survey, so a modified survey was administered. The mean differences between NARE (mean = 4.52, SD = .64) and AC (mean = 3.61, SD = .33) and MRSH (mean = 3.78, SD = .53)were statistically meaningful.

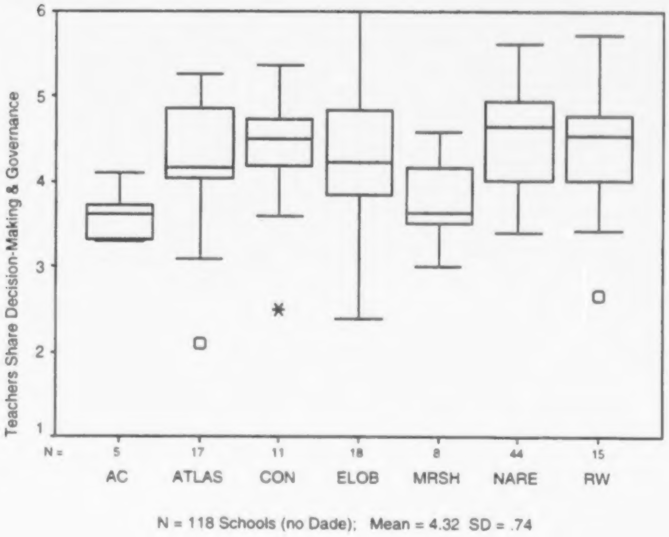

Figure 5.3. Teacher Reports about Shared Decision Making in Their School by NAS Design, Spring 1997

TEACHER PROFESSIONAL LIFE

Teacher responses about the extent to which their school could be characterized as collaborative environment varied, depending on how specific the measure of collaboration. The more general the notion of collaboration, the more teachers tended to say their school was collaborative. However, more specific aspects of collaboration were much less common. For instance, most teachers in the 130 implementing NAS schools reported that they were continual learners and team members. However, few teachers in these implementing schools reported meeting together to discuss or critique instruction. Even fewer reported meeting with other schools as a "critical friend" to discuss progress toward designs goals.

Many teachers reported that teachers in their school were continual learners and team members through professional development, common planning time, and collaboration. Figure 5.4 shows that the average in the 130 schools was 4.74 (SD = .55), which on a scale ranging from 1 to 6 is quite high. These higher levels were consistent across all the designs, even though the mean differences between CON and AC and ATLAS were statistically significant.

However, teachers reported lower levels of collaboration when asked about the extent to which formal arrangements within their schools provide opportunities for teachers to discuss and critique their instruction with each other. Figure 5.5 shows much lower levels for this indicator across all the designs.[17] The average level in the implementing schools was 3.28 (SD = .83). ATLAS, MRSH, and NARE designs tended toward lower levels on this indicator.

Some of the designs, such as CON and ELOB, encourage schools to visit and meet with other schools to discuss issues related to implementation. This type of collaboration among teachers and schools was quite rare as of the spring of 1997. Figure 5.6 shows that CON and ELOB schools tended to be at the midpoint on our six-point scale (CON mean is 3.05 [SD = .74]and ELOB mean is 3.72 [SD = .69]). Overall in the implementing NAS schools, the average level of such collaboration was 2.62 (SD = .64).

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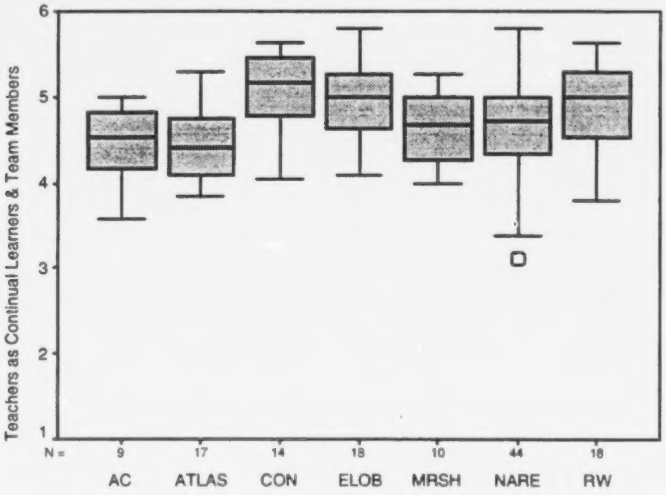
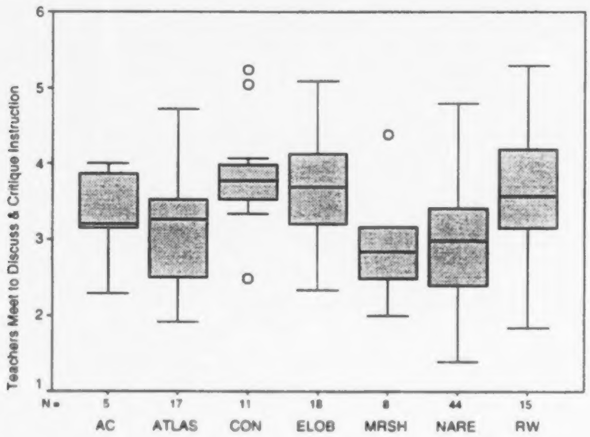
[17] Again, Dade County Public schools did not allow RAND to ask about certain issues, such as teachers meeting together to discuss and critique instruction and teachers meeting with other schools to discuss implementation issues and progress - Figures 5.4 and 5.5, respectively. In Figure 5.3, the mean differences between CON (mean = 3.86, SD = .76)/ATLAS (mean = 3.11, SD = .72)/MRSH (mean = 2.92, SD = .71)/and NARE (mean = 2.95, SD = .72) were statistically significant. In Figure 5.4, the mean differences between CON and AC (mean = 2.14, SD = .45)/ATLAS (mean = 2.35, SD = .47)/and MRSH (mean = 2.17, SD = .49) were statistically significant.



N = 130 Schools; Mean = 4.74 SD = .55

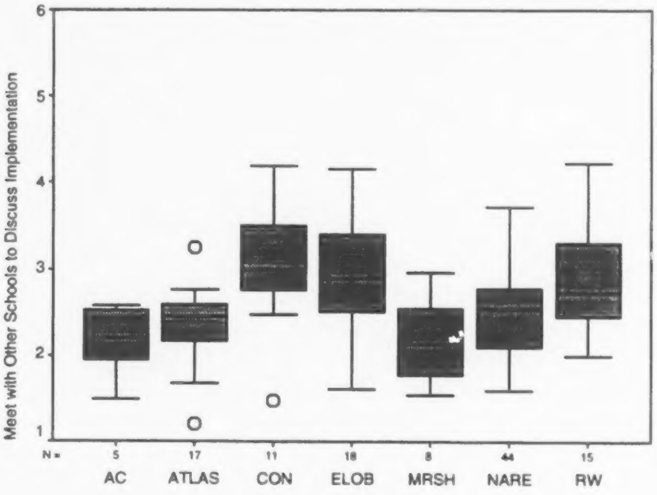
Figure 5.4. Teachers as Continual Learners and Team Members by NAS Design, Spring 1997

Figure 5.5. Teachers Meet to Discuss and Critique Instruction by NAS



N = 118 Schools Mean = 3.28 SD = .83

Design, Spring 1997



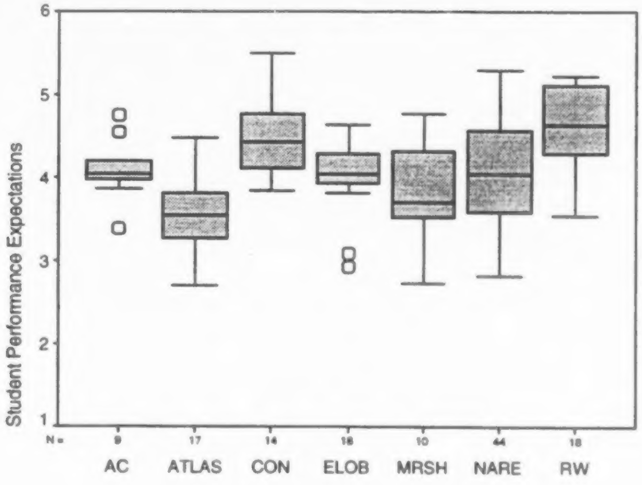
N = 118 Schools; Mean = 2.62 SD = .64

Figure 5.6. Teachers Meet with Teachers from Other Schools to Discuss Implementation Progress by NAS Design, Spring 1997

PERFORMANCE EXPECTATIONS

Setting challenging performance expectations within the implementing NAS schools appeared to be in progress by Spring 1997, even though the levels across most of the design teams were not extremely high (see Figure 5.7). Teachers reported whether their schools are explicitly linking student assessments to academic standards, making expectations explicit to students, establishing consistent and coherent curriculum and performance standards, and monitoring students according to annual performance targets. The average across the designs for this index was 4.10 (SD = .59) on a scale that ranges from a low of 1 to a high of 6. RW and CON schools were at higher levels on the performance expectations measure. The mean differences between RW and CON and all the other designs were statistically significant. (The difference between RW and CON was not statistically meaningful.)

Figure 5.7. Performance Expectations Index by NAS Design, Spring 1997

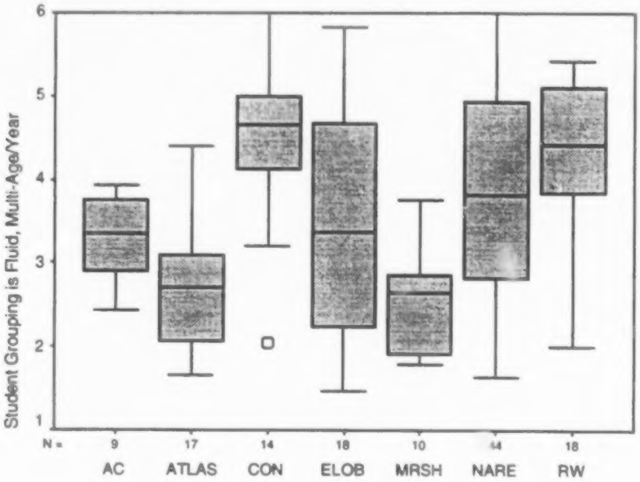


N = 130 Schools; Mean = 4.10 SD = .60

INSTRUCTIONAL GROUPING ARRANGEMENTS

At some point in their development, most of the NAS designs have explored alternative ways to group students for instructional purposes, including multi-age grouping, having teachers follow a cohort of students across years (i.e., "looping" or multi-year grouping), or experimenting with block-scheduling. Here we explore the extent of teacher reported implementation of these different grouping arrangements within the 130 implementing NAS schools.

When considering the degree to which the NAS schools have implemented alternative grouping arrangements, we see that most schools were at the mid-points on our indicators. Some designs were at higher levels, such as CON and RW. For instance, Figure 5.8 shows the school-level average for the measure asking the extent to which student grouping was fluid, multi-age, or multi-year was 3.63 (SD = 1.22).[18] This mean for the NAS sample was at the midpoint on the scale that ranges from 1 to 6.



N = 130 Schools Mean = 3.63 SD = 1.22

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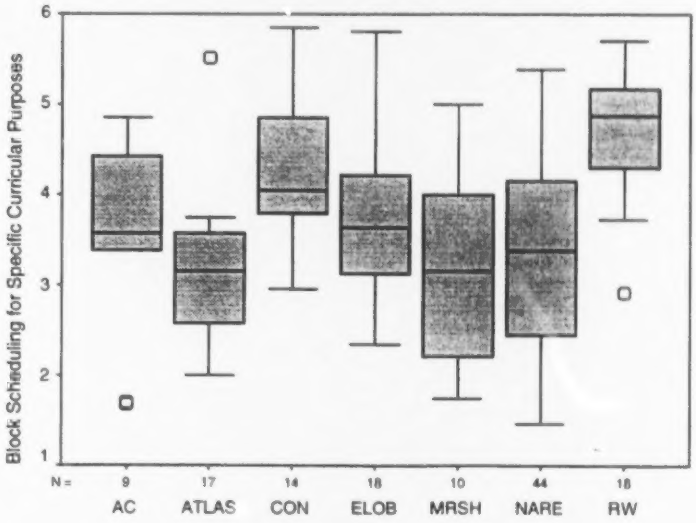
[18] The mean differences between CON (mean = 4.37, SD = 1.01) and AC (mean = 3.28, SD = .52)/ATLAS (mean = 2.73, SD = .77)/and MRSH (mean = 2.57, SD = .68) were statistically significant. The mean differences between the RW schools (mean = 4.25, SD = 1.02) and the AC/ATLAS/and MRSH schools in the sample were also statistically meaningful.

Figure 5.8. Alternative Student Grouping Arrangements by NAS Design, Spring 1997

Similarly, block scheduling was not that extensive in the implementing NAS sites. The average across the 130 implementing NAS schools for this measure - i.e., the extent to which teachers reported that their school used block-scheduling for specific curricular purposes - was 3.70 (SD = 1.08), just above the midpoint on the six-point scale (see Figure 5.9).

RW and CON schools tended to report higher levels for the block-scheduling indicator when compared to the other designs. The school mean differences between RW or CON and all the other designs except CON were statistically meaningful.



N = 130 Schools Mean = 3.70 SD = 1.08

Figure 5.9. Block Scheduling for Specific Curricular Purposes by NAS Design, Spring 1997

INNOVATIVE INSTRUCTIONAL STRATEGIES

The interactions between teachers and students are at the heart of the schooling process. The NAS designs provide different visions, yet each embraces instructional strategies that involve different relationships among teachers, students, and subject matter.

Here we examine an indicator that combines several different instructional strategies. The instructional strategies index[19] was comprised of aggregated teacher responses describing the extent (a low of 1 to a high of 6) that the statement describes their school, including:

- Students are required to make formal presentations to exhibit what they have learned before they can progress to the next level;
- Teachers develop and monitor student progress with personalized, individualized learning programs;
- Students frequently revise their work toward an exemplary final product;
- Scope and sequence of the curriculum is organized into semester long themes;
- Students engage in project-based learning for a significant portion of the school day (i.e., > 1/3); and
- Students frequently listen to speaker and go on field trips that specifically relate to the curriculum; and
- Curriculum throughout this school emphasizes preparation for and relevance to the world of work.

Most of the 130 NAS schools were implementing within the midrange on the six-point scale for the instructional strategies index (see Figure 5.10). CON and ELOB schools tended to be implementing at higher levels than the other NAS design schools. The average for the 14 CON schools in the sample was the highest (mean = 4.22, SD = .61), and this differed significantly from the school means for three other designs - ATLAS, MRSH, and NARE.[20]

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[19] The alpha reliability for this index is .86.

[20] ATLAS (mean = 3.46, SD = .40), MRSH (mean = 3.40, SD = .49), and NARE (mean = 3.73, SD = .59).

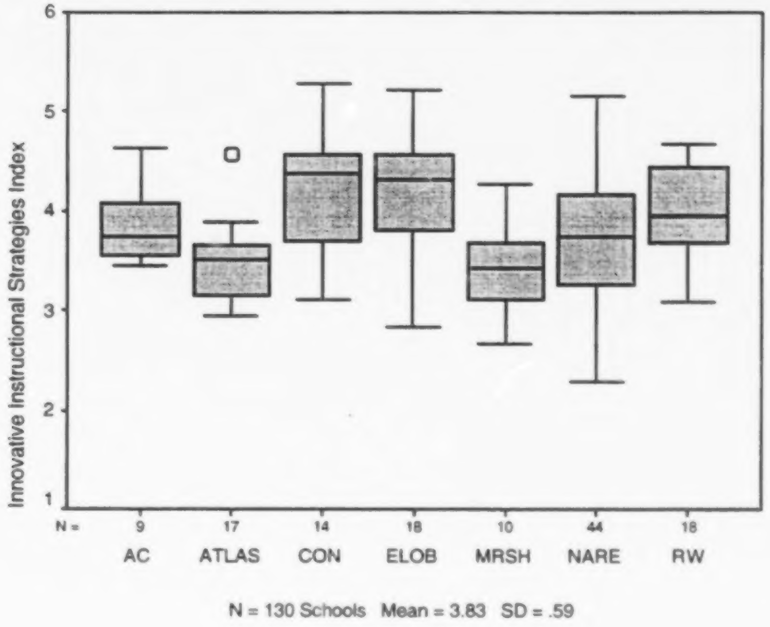

Figure 5.10. Innovative Instructional Strategies Index by NAS Design, Spring 1997

INVOLVEMENT OF PARENTS AND COMMUNITY

Involving parents and community in schools has received a great deal of attention by policymakers, educational reformers, and researchers in recent years. To a certain extent, each of the designs encourages parent involvement in schools to benefit the educational opportunities of students. In addition, several of the designs encourage students to think about how their learning applies to the world outside of school.[21] On our teacher surveys, we included items to indicate the extent to which (1) schools encouraged students to apply their learning in ways that directly benefited the community and (2) parents and community members are involved in the educational program within the school.

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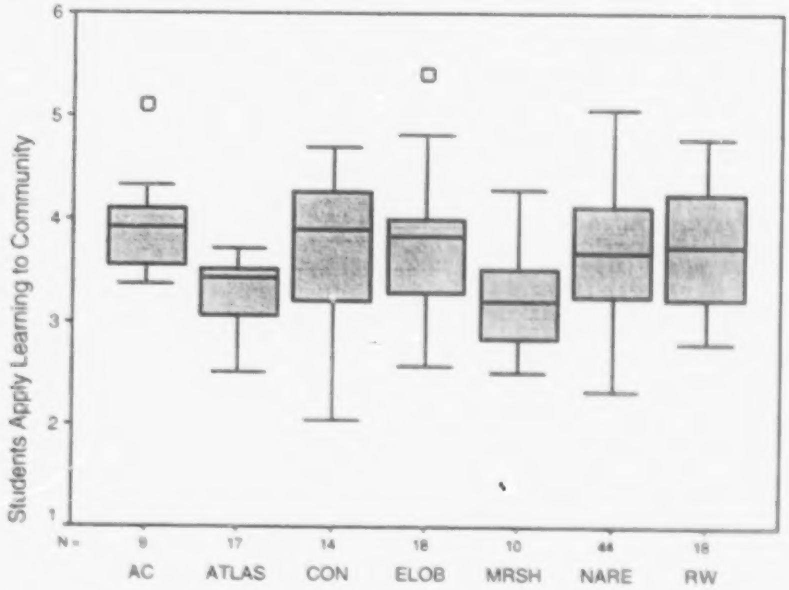
[21] Application of student learning to the community has received quite a bit of recent attention in restructuring efforts independent of NAS (see Newmann and Wehlage, 1995; Newmann et al., 1996).

For each of these indicators, the NAS implementation level in the sample was near the midpoint on the six-point scale. For example, in terms of students applying what they learn to the community, the NAS school average was 3.64 (SD = .66) (see Figure 5.11). The distributions for schools by designs were quite similar, except that the school means for the ATLAS and MRSH designs were significantly (statistically) below those of the other designs.



N = 130 Schools Mean = 3.64 SD = .66

Figure 5.11. Students Apply Learning in Ways that Directly Benefit the Community by NAS Design, Spring 1997

Similarly, parents and community members were not extensively involved in the NAS schools, on average, according to teacher reports. Figure 5.12 shows the most of the schools fell within the midrange on this indicator (mean = 3.81, SD = .80). The medians for ATLAS and MRSH were at lower levels on this measure than the other designs.

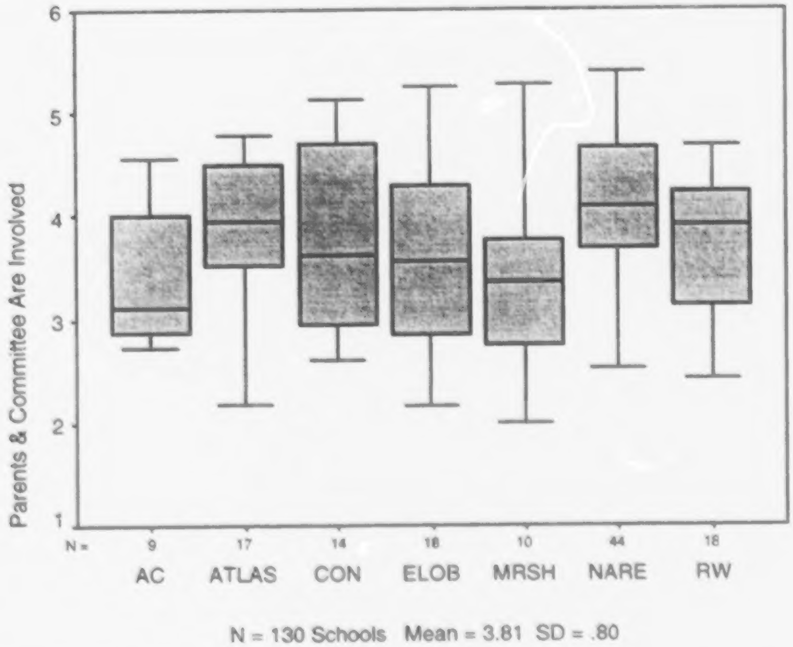


Figure 5.12. Parent and Community Involvement by NAS Design, Spring 1997

AN OVERALL MEASURE OF IMPLEMENTATION

In addition to all of these indicators within each of the different areas of organization and governance, the professional life of teachers, content and performance expectations, instructional strategies, and parent and community life, we examined an overall summary measure of implementation that combined selected measures analyzed above. This measure is a summative index of the measures for instructional strategies, performance expectations, alternative student grouping arrangements, teacher collaboration and common planning time, and students apply their learning in ways that directly benefit the community. This overall implementation index fits the data very well. These five indicators were selected from each of the overall areas of design, except for the area of organization and governance.

We analyze this measure for several reasons:

First, the core function of schools is teaching and learning. Therefore, we selected those teacher-reported implementation indicators that conceptually spanned a number of the areas of designs, but also we selected those that were related more directly to influencing what goes on inside classrooms. From an organizational perspective, classroom instruction is the core technology of school organizations and the primary mechanism through which learning occurs (Gamoran et al., 1995; Gamoran and Dreeben, 1986; Parsons, 1960). It is this core function of schools, that the designs ultimately want to influence. It is this aspect of implementation that our overall implementation index aims to measure.

Second, this summary measure fits the data for the 130 implementing NAS schools very well. Statistical tests show that these indicators can be combined into an underlying measure whether based on a summary measure for the intercorrelations of the these measures at the school level or on a more stringent test that examines how well these indicators fit an underlying construct.[22]

Third, we want to examine factors related to implementation, and this summary measure allows us to present our results in a parsimonious manner.

Finally, when examining the array of schools for this general implementation index by design team, the patterns are consistent with the general patterns presented above. That is, as of the spring of 1997, the overall level of implementation is within the midrange for the 130 implementing NAS schools (mean = 3.99, SD = .62), and there is significant variation among the designs. Figure 5.13 shows that the levels of implementation tend to be higher in the RW and CON schools, and the levels of implementation for the ATLAS and MRSH schools tend to lag behind those of the other designs. In fact, the average for the RW schools is significantly higher than the averages for AC, ATLAS, ELOB, MRSH, and NARE. Moreover, the average implementation levels in the CON schools are significantly higher than the AC, AT, and MRSH schools.

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[22] The alpha reliability of this index is .87. Because we wanted to empirically test whether an underlying construct of implementation fit the data for the 130 implementing schools, we conducted a more stringent test than the popular alpha reliability estimate. Using structural equation modeling, we estimated a measurement model with one underlying construct and these five indicators. Estimated in LISREL (Joreskog and Sorbom, 1996), this model fit the data very well (χ^2 = 4.73 with 4 degrees of freedom, p = .32) after allowing for the intercorrelation of the error terms for the instructional strategies and applying learning to community indicators. For a discussion of this method, see Bollen (1989) and for recent applications, see Berends (1996) and Gamoran et al. (1995)

We will examine reasons for why these patterns emerge in the next chapter.

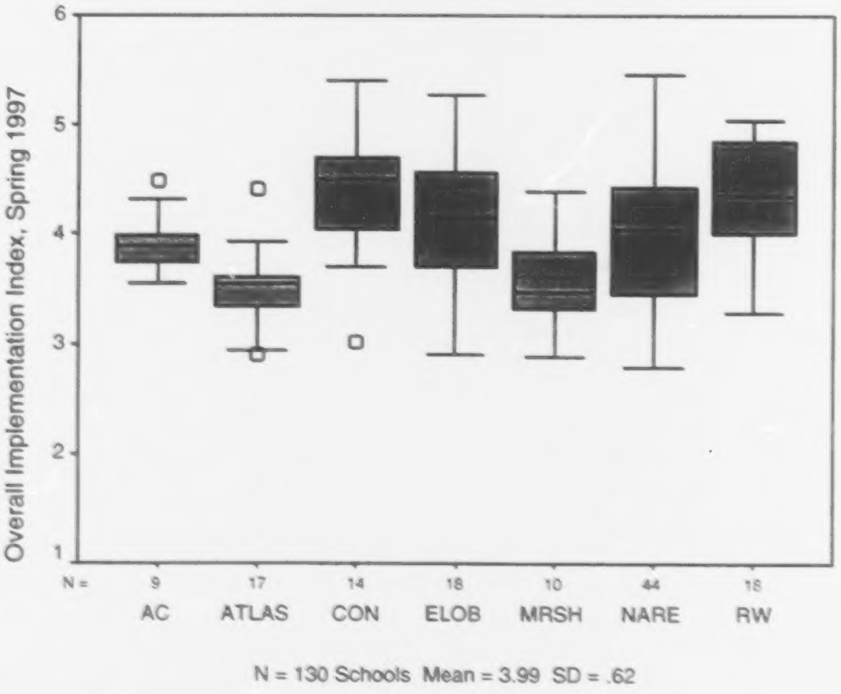

Figure 5.13. Overall Implementation Index by NAS Design.

SUMMARY

The wide array of descriptive summaries reveal the following:

- As of the spring of 1997, about 75 percent of the 155 schools for which we had teacher, principal, and district data were implementing a NAS design in the whole school. Roughly 10 percent were implementing a design in part of the school, and about 15 percent were exploring designs to implement or planning to implement a design.

- Teachers tended to report higher levels of implementation in the area of governance than in the areas of teacher professional life, performance expectations, instructional grouping and strategies, and parent and community involvement. Specifically, teachers reported higher levels of implementation when considering (1) the school authority to make budget, staffing, and program decisions; and (2) teachers and others sharing in school decision making. However, there is also evidence that once one focuses on what the changes in authority relations actually mean, teachers may overestimate the degree to which their school has authority (Bodilly, 1998; Berends and King, 1994; Bimber, 1993).
- Teachers tended to rate their schools in the mid-range of implementation for indicators of teacher professional life, performance expectations, instructional grouping and strategies, and parent and community involvement.
- Teachers reported higher levels of collaboration when defined generally (i.e., reports about teachers being continual learners and team members through professional development, common planning time, and collaboration). However, teachers reported lower levels for more specific measures of collaboration - such as teachers discussing and critiquing instruction with each other or discussing implementation issues with teachers from other schools.
- The level of teacher reports about implementation varied by design. There are specific reasons explaining some of this variation, which we address in the next Chapter). Teachers in CON and RW schools tended to be at higher levels of implementation across indicators, while MRSH and ATLAS tend to be at lower levels. The levels for the other designs (AC, ELOB, and NARE) vary, depending on the implementation indicator being considered. These general patterns of the designs are reflected not only in the wide array of implementation

indicators but also in an overall implementation index that taps into the core function of teaching and learning in schools.

As additional data in future years is collected, we will be able to assess the progress these schools make. Schools will progress if they increase the degree to which a design element has been implemented (i.e., increase in average level) and if teachers within schools tend to agree on the level of implementation (i.e., decrease in the within-school variance in the indicator of interest).

6. THE RELATIONSHIP OF IMPLEMENTATION TO SCHOOL CONTEXT

In this chapter we examine factors related to implementation. Specifically, we focus on whether implementation is related to factors such whether a school's experience with the design, teacher familiarity with design, communication of the designs to schools, staff stability, resource availability, and prior school restructuring experiences. We also examine whether these implementation factors differ among the NAS designs. In addition, we examine whether implementation is related to school demographic characteristics - school poverty, racial-ethnic composition, level, and size - and teacher background characteristics - gender, race-ethnicity, education, age, and experience. Similar to the last chapter, the unit of analysis is the school, and the measures are based on teacher or principal reports.

RELATIONSHIP TO OTHER IMPLEMENTATION FACTORS

We analyzed whether implementation factors described in RAND's case study research were related to the overall implementation measure here. For example, Bodilly (1998) describes several implementation factors that contributed to different levels of implementation in a sample of 40 schools that were visited in 1995-1996 and 1996-1997. From our surveys of teachers and principals, we are able to examine some of these factors. Specifically, we analyzed whether teacher-reported implementation levels differed by

- a school's experience with designs;
- the familiarity of teachers with designs;
- communication by designs to schools;
- staff stability;
- resource availability; and
- prior experiences with restructuring.

We found all of these factors are related to the degree to which schools implement the NAS designs. Moreover, they differ among the NAS designs in important ways. The remainder of this chapter discusses each of these factors in more detail.

School's Experience with Designs

A school's length of experience with implementing a NAS design was related to the degree to which the design was implemented as spring 1997. Of course, this is what one would expect, but the levels of implementation increased significantly when comparing schools in their first year of implementation to those in their second year or more. Figure 6.1 shows this pattern of results. Schools in their first year had an average implementation level of 3.69 (SD = .59), which is significantly below the average of more experienced schools (mean = 4.15, SD = .58).

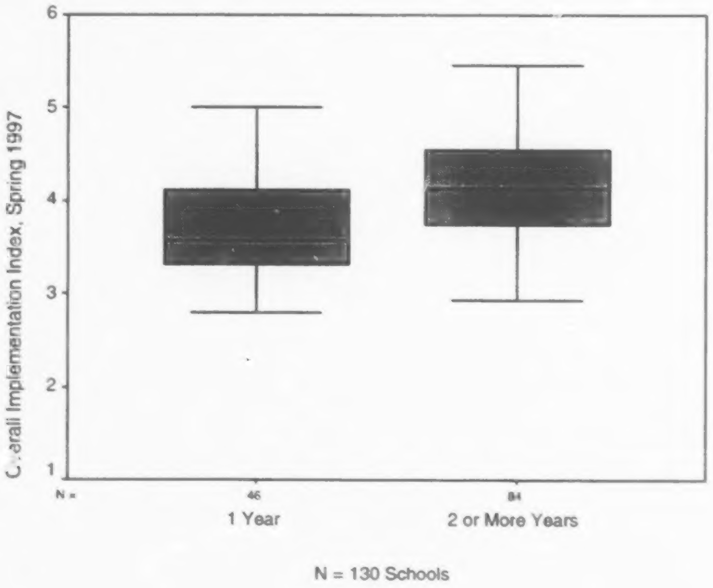

Figure 6.1. Overall Implementation Index by the Number of Years School Has Been Implementing.

Familiarity of Teachers with Designs

In other RAND research, teachers expressed that it takes quite a while before they truly understand what the design entails (Bodilly, 1998). As teachers become more familiar with the design, we would expect that implementation would deepen in various areas of implementation (particularly, teacher professional life, performance expectations, instructional grouping and strategies, and parent involvement).

On our teacher surveys we asked teachers to rate how familiar they were with the design, and we recoded these responses to indicate whether teachers were very familiar or less familiar with the NAS design in their school.[23] Figure 6.2 shows that schools where teachers reported that they were quite familiar with the design had significantly higher levels of implementation (mean = 4.33, SD = .55) than schools where school staff is less familiar (mean = 3.74, SD = .55).

One might expect that the relationship between the number of years a school has been implementing and teacher familiarity with the design might be very highly correlated. They are not. We found that even if schools have been implementing for two years or more, a significant number of them still report being unfamiliar with the designs even if. Of those schools that had been implementing for 2 years or more (Figure 6.1), 42 of these 84 schools reported being less familiar with the designs.

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[23] Teachers' responses on the original survey item ranged from a 1 indicating "not at all familiar" to a 6 "very familiar." After preliminary analysis, we recoded these responses into a dichotomous measure equal to 1 for "very familiar" (a score of 5 or 6 on the original item) and to 0 for "less familiar" (a score of 4 or less on the original item).

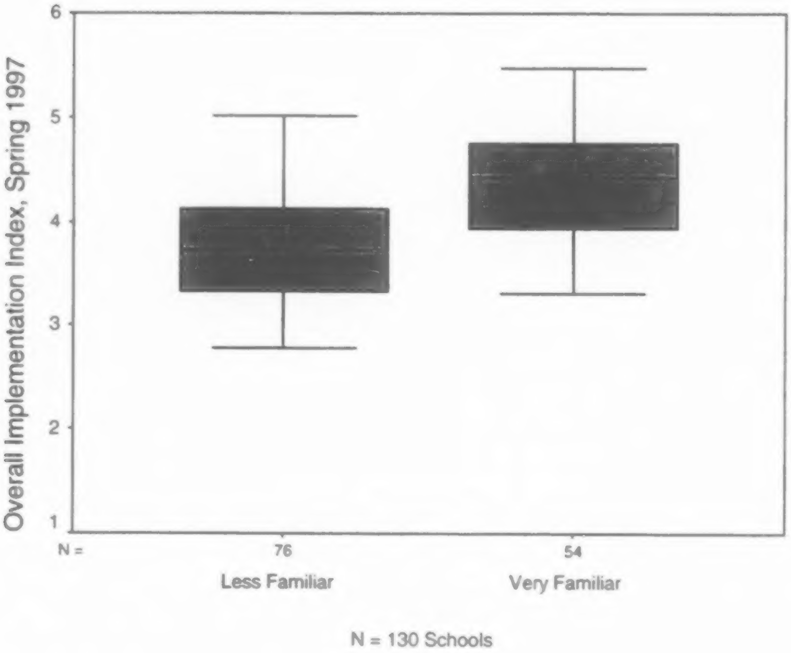

Figure 6.2. Implementation Index by How Familiar Teachers are with NAS Design in Their School.

Communication by Designs to Schools

How clearly NAS design teams communicate their program to teachers was also related to the degree to which the designs are being implemented. Based on a question about the degree to which the design team clearly communicated its program to school staff, we created a measure for "less" and "more clear."[24]

Only thirty percent of the 130 schools (39 out of 130) reported that the design teams clearly communicated their design to schools (see

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[24] When asked, "Did the design team clearly communicated its program to school staff so that it could be well-implemented?", teachers could respond from "no, not at all" (a one on the original survey scale) to "yes, definitely" (a six on our scale). After preliminary analysis, we recoded these responses into a dichotomous measure equal to 1 for "more clear" (a score of 5 or 6 on the original item) and to 0 for "less clear" (a score of 4 or less on the original item).

Figure 6.3). These schools also had higher levels of implementation, on average, than those schools reporting less clear communication.

The mean difference between schools experiencing more clear versus less clear communication was statistically meaningful. On our index ranging from 1 (low implementation) to 6 (high), the average across the schools reporting more clear communication was 4.49 (SD = .55) compared to the average of 3.78 (SD = .52) for those schools reporting less clear communication.

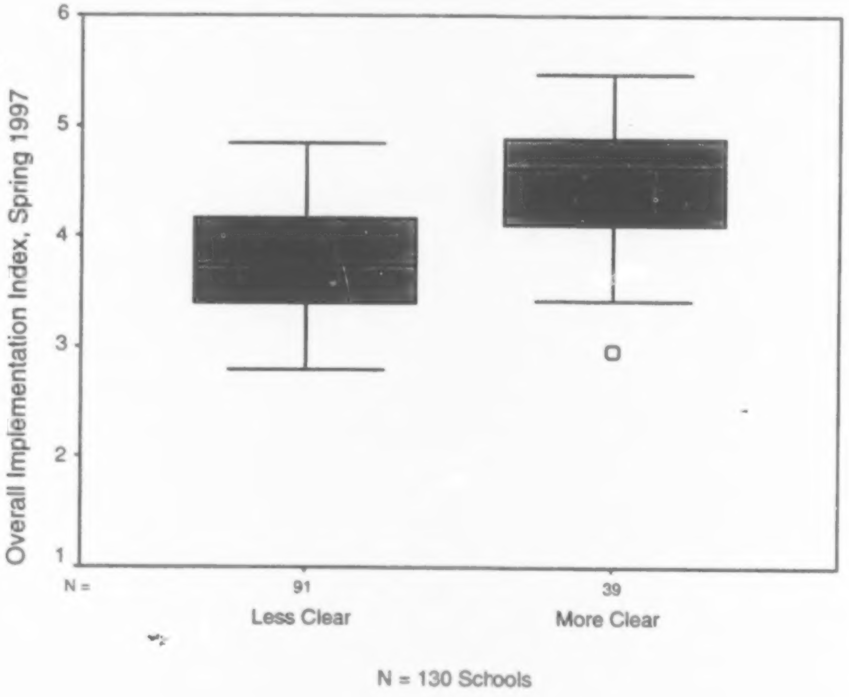

Figure 6.3. Implementation Index by Clarity of Communication by Designs to School Staff.

Staff Stability

Previous research has found that a stable staff is critical for implementing any type of reform. Stability of staff is likely to be more important when considering *whole-school* reforms such as the NAS designs. Our data revealed that stability of staff was associated with greater degrees of implementation. If a stable staff means that 90 percent or more of the teaching staff was retained between the 1995-1996 and 1996-1997 schools years, schools with such stability also had higher levels of implementation according to our index (see Figure 6.4). On average, the NAS sites with greater stability had implementation levels of 4.03 (SD = .62) compared to schools in which less teachers were retained across school years (mean = 3.79, SD = .59).[25]

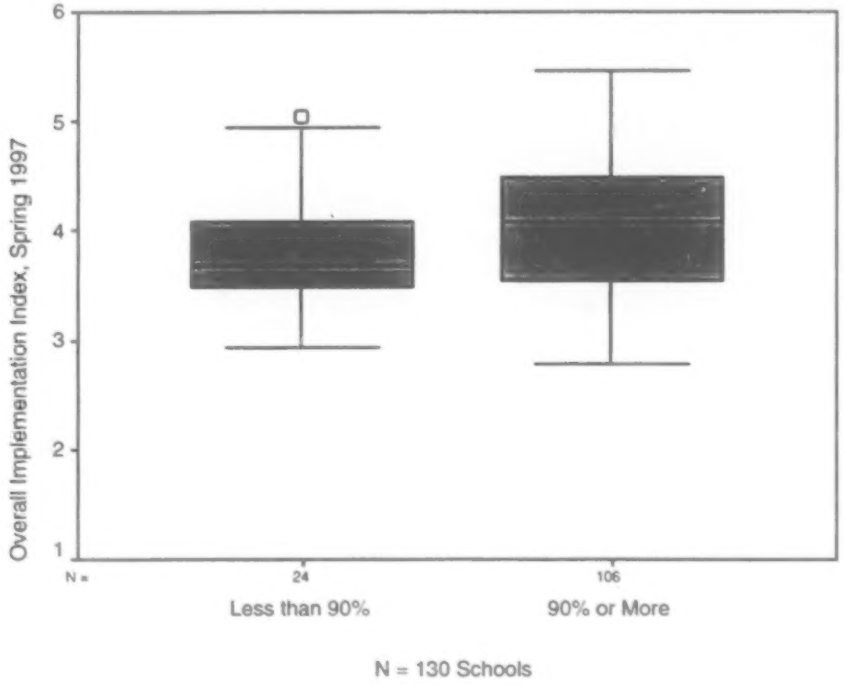

Figure 6.4. Implementation Index by Staff Stability - Whether or Not 90% or More of Teachers Remained in School between the 1995-1996 and 1996-1997 School Years.

Resource Availability

Schools in which teachers report a greater amount of available resources (e.g., materials to describe design, materials to support instruction, professional development, time for planning and collaboration, consultant to mentor and advise, technology, and funding) report higher levels of implementation. The distribution of the NAS sites by implementation and resource levels appears in Figure 6.5. The average level of implementation in schools reporting higher levels of resources was 4.51 (SD = .53), which was significantly higher than the average for schools that report medium (mean = 3.85, SD = .54) or low (mean = 3.51, SD = .50) levels on our resource availability measure.[26]

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[25] This is a statistically meaningful difference ($p \leq .10$).

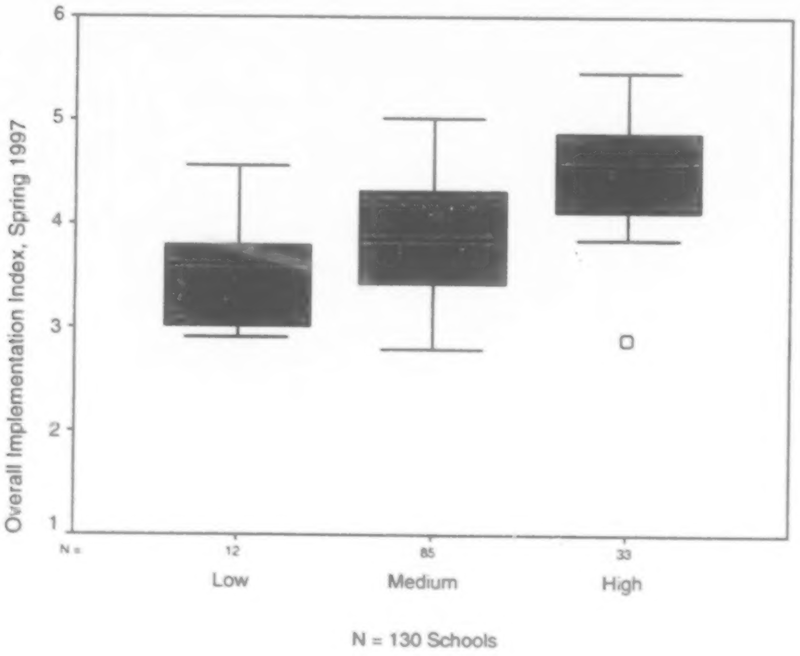

Figure 6.5. Implementation Index by Resource Availability.

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[26] This resource measure is based on teacher responses to several items relating to a question that asked: To what extent does your school have the resources needed to implement the major elements of the design team program? Teachers could respond on a five-point scale, ranging from 1 "no resources are available" to 5 "all are available." Several specific resource items were included in this question: (1) materials to describe design team program; (2) materials to support instruction; (3) professional development of teachers; (4) time for planning, collaboration, and development; (5) staff or consultants to mentor, advise, and provide ongoing support; (6) technology and connectivity; (7) Funds; and (8) funding flexibility. The alpha reliability for this resource index was .92.

Prior Experiences with Restructuring

Finally, when schools reported previous experience with other types of restructuring activities, the implementation levels of the NAS designs tended to be higher (see Figure 6.6). Those schools with some sort of previous restructuring efforts (e.g., Reading Recovery, whole language, performance assessments, portfolio assessments, Sizer's Coalition of Essential Schools, Comer School Development Program, Success for All) had a mean level of 4.09 (SD = .64) on our implementation index, which was significantly higher (statistically) than schools with no prior restructuring experiences (mean = 3.87, SD = .58).

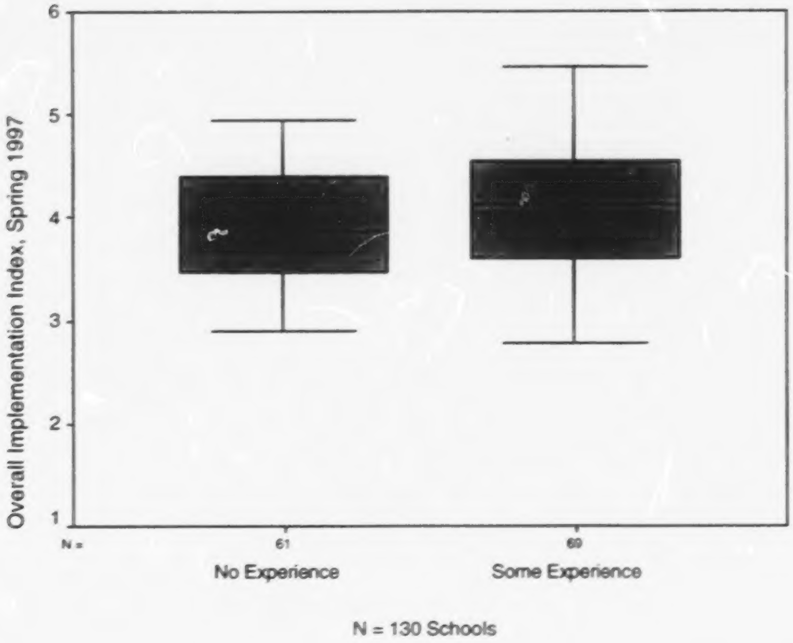

Figure 6.6. Implementation Index by Whether or Not School has Experience with Restructuring Activities.

HOW IMPLEMENTATION FACTORS VARY AMONG DESIGNS

In the previous chapter, we showed that the overall implementation index varied by design. That is, teachers in CON and RW schools tended to be at higher levels of implementation across indicators, while MRSH and ATLAS tend to be at lower levels. Here, we examine whether some of the design team variation might be explained by previously described implementation factors. Again, for the sake of parsimony, we analyze the overall implementation index (see Figure 5.13 for differences by design).

When comparing the designs by implementation factors, we found some clear differences. A school's experience with the design, teachers' familiarity with the design, communication by the designs to schools, and teacher-reported availability of resources vary among the designs. These results are shown in Tables 6.1 and 6.2.

Results above show that a school's experience with designs is related to implementation; this may be a critical factor in explaining some differences we observed among design implementation. The first column of Table 6.1 shows the percent of schools that reported being in their first year of implementation as of spring 1997. Overall, just over a third of the schools reported that the 1996-1997 school year was their first year of implementation. The vast majority of the ATLAS (82 percent) and MRSH (60 percent) schools were in their first year of implementation, and this explains, in part, the lower levels of implementation we found in these schools. By contrast, only 6 percent of the RW schools in our sample of 130 implementing schools were in their first year, and this may explain the higher levels of implementation of the RW schools we found across indicators in Chapter 5.

When examining design differences in the percent of schools that reported being very familiar with designs, we found that most CON (71 percent), ELOB (78 percent), and RW (89 percent) reported being very familiar with designs. This contrasts the low percentage of AC, ATLAS, and NARE schools that reported such familiarity.

The designs also differ in the clarity of their communication to schools according to teacher reports. The third column of Table 6.1 reveals that very few (if any) AC, ATLAS, MRSH, and NARE schools report that the design team clearly communicated their design to schools so that it could be well implemented. A majority of the CON and RW schools, by contrast, report clear communication to schools by these designs.

Staff stability is also related to implementation, and we found that only about 70 percent of MRSH, ATLAS and MRSH schools reported that most of their teachers (i.e., 90 percent or more) remained in the school between the 1995-1996 and 1996-1997 school years. Over 80 percent of the AC, CON, NARE, and RW schools reported having stable staffs across these school years.

Table 6.1.

Implementation Factors by NAS Design.

	Implementation Factors				
NAS Design	% in First Year at Implementation	% Very Familiar with Design	% Clear Communication by Design	% With Stable Staffs	Number of Implementing Schools
AC	11%	11%	0%	89%	9
ATLAS	82%	18%	12%	71%	17
CON	36%	71%	57%	86%	14
ELOB	44%	78%	33%	72%	18
MRSH	60%	40%	10%	70%	10
NARE	25%	14%	18%	89%	44
RW	6%	89%	78%	83%	18
Average for 130 Schools	35%	42%	30%	82%	130

Resource availability as reported by teachers is related to implementation, and we found that there were significant differences among the designs. AC, ATLAS, ELOB, MRSH, and NARE schools had teachers who tended to report that resource availability was in the mid-range (see Table 6.2). CON and RW schools had teachers reporting higher levels of resource availability (i.e., between medium and high).

Table 6.2.

Teacher-Reported Resource Availability by NAS Design.

NAS Design	Average Teacher-Reported Resource Availability (1=low, 2=medium, 3=high)
AC	1.67
ATLAS	2.00
CON	2.57
ELOB	2.11
MRSH	2.10
NARE	2.05
RW	2.61
Average for 130 Schools	2.16

Taking these findings together, there are some marked differences between the design teams that showed higher levels (i.e., RW and CON) and lower levels of implementation (i.e., ATLAS and MRSH). Compared to the other designs, RW and CON schools not only had higher levels of implementation, but they also had more experience with the designs, were more familiar with them, received clearer communication by the teams, and had higher levels of teacher-reported resources that were available to implement the designs.

ATLAS and MRSH designs, however, had lower levels of implementation, but these levels were related to inexperience, less familiarity, less clear communication to the schools by the designs, and lower levels of teacher-reported resource availability.

RELATIONSHIP TO SCHOOL DEMOGRAPHICS

In our analyses, we also examined whether there were differences in implementation according to our overall index by several school demographic characteristics.

Surprisingly, with few exceptions, we found very little significant variation in implementation when considering differences in

- school poverty composition;
- school minority composition;
- school level (i.e., elementary, middle, high school);
- and school size.

Some of these findings are inconsistent with previous RAND's analysis based on case studies (Bodilly, 1996) that has shown elementary schools and smaller schools having deeper levels of implementation than secondary or larger schools. There may be several reasons for this inconsistency. First, overall the implementation levels were in the midrange of our overall implementation index, so generally, the findings here suggest that this level of implementation can be achieved in a wide variety of school types - small and large, elementary and secondary, minority and nonminority, poor and nonpoor. However, overall implementation is not high as of the spring of 1997. Whether implementation deepens over time and whether this is related to different types of schools will be examined when future data from these schools becomes available. Second, this sample has 130 schools, whereas RAND's case study analysis examined 40 schools, and perhaps these sampling differences account for the different results reported here. Third, 7 of the 17 high schools in this sample of 130 are NARE sites in Kentucky, where there are state-mandated reforms that may lead to restructuring within schools that are consistent with the levels of implementation observed on our index. Finally, the differences in the implementation measure between RAND's case studies and the analysis here may account for these different findings about school level. However, this is a less likely explanation because the vast majority of the findings here are consistent with the RAND case study analysis despite different methods and sampling. We will return to the issue of school demographics in the next chapter when we discuss relationships to teacher support and reported effects on teachers and students.

RELATIONSHIP TO TEACHER BACKGROUND CHARACTERISTICS

In addition to examining the relationships between implementation and school demographics, we found that the overall implementation index was not related to the following teacher background characteristics:

- gender;
- racial-ethnic background;
- educational degree (bachelor's vs. master's or above);
- age; and
- years of experience within their current schools.

Our analyses revealed that these teacher characteristics were not significantly related to variation in implementation levels. This suggests that some degree of implementation can be accomplished regardless of the teacher characteristics examined here. It remains an open question whether these teacher attributes are related to changes in implementation - particularly deeper implementation levels. We will examine this in the future when longitudinal data becomes available for these schools.

SUMMARY

In summary, the average level of implementation was not that high across the NAS schools in our sample as a whole as we might expect at this point in the implementation process during scale up. Whether implementation according to our overall measure as well as the various components deepens over time is a question we will revisit in future years of our research.

Despite the extent of implementation in spring 1997 being near the midpoint on our scale, several implementation factors pointed to in previous research were related to greater degrees of implementation, including:

- the number of years school has actually been implementing;

- teacher familiarity with design;
- the clarity of communication of designs to schools;
- staff stability;
- teacher reports about resource availability; and
- prior restructuring experiences.

Moreover, these implementation factors differ markedly among some the designs, especially those that had higher levels of implementation (CON and RW) compared to those with lower levels (ATLAS and MRSH). In comparison to all the other designs, but particularly ATLAS and MRSH, RW and CON schools had higher levels of implementation, were more experienced with the designs and more familiar with them. These schools also received clearer communication by the teams and had teachers who reported that resources for implementation were more available.

We found that school demographic and teacher background characteristics were unrelated to differences in implementation levels. This suggests that the mid-level implementation of NAS designs shown in our analysis can occur in a wide variety of sites, regardless of the demographic features of the schools and their teaching staffs. However, for that implementation to occur schools will need: experience with designs, opportunities to increase their familiarity with design team activities, clear communication from designs, and adequate resources.

While we have examined a wide array of implementation indicators and factors associated with variation in implementation, we now turn to the degree to which teachers support the design in their school and teachers' judgments about whether the designs have had an impact on their professional growth and students' achievement and engagement.

7. TEACHER SUPPORT AND JUDGEMENTS ABOUT EARLY EFFECTS OF DESIGNS: EXPLORING RELATIONSHIPS TO TEACHER BACKGROUND AND SCHOOL CONTEXT

Getting teachers within schools to support and sustain the implementation of the NAS designs is critical to the success of whole-school change. However, such implementation is arduous work for teachers. This has been pointed out in other research, so it is worthwhile to monitor teacher-reported support for the NAS designs and examine factors related it (Bodilly, 1998; Purnell and Hill, 1992; Datnow and Stringfield, 1997; Stringfield and Datnow, 1998).

In addition, whether the designs are able to have positive effects on teachers' professional lives and, more importantly, the educational experiences of students are not known across a wide array of schools. This is especially true for schools in the first few years of implementing whole-school reforms.

This chapter attempts to shed light on these issues with our survey data from teachers and principals - both with descriptive and multivariate analyses. Specifically, we addresses the following questions:

- How supportive are teachers of the NAS designs in their schools?
- Based on teacher judgements, what are the effects of the designs on student achievement and engagement and teachers' professional growth?
- Are teacher background characteristics -- such as gender, race-ethnicity, educational background, age, or experience - related to support and perceived effects on students and teachers?
- Are school demographic characteristics and implementation factors related to support and teacher reports about the effects of the design in their school?

MEASURES

In the analyses that follow we examined the relationships among teacher background characteristics, school demographics, school implementation factors, and teachers' reports about their support of the designs and about the effects of designs in their schools on students and on the teachers themselves. These measures were discussed in detail in Section 3, but for clarity we briefly list the variables analyzed in this chapter.

DEPENDENT VARIABLES

We analyzed three dependent variables in our analyses:

- Teacher support for the NAS design in their school.
- Teachers' reports about the effects of the design effects on their professional growth.
- Each teacher's judgement about the effects of the NAS design on his/her students' achievement, engagement, and enthusiasm in school.

While our measures were based on teachers' judgements of the effects of designs on their professional growth and student achievement and engagement, in future reports we will analyze forthcoming data with more objective measures of student achievement and engagement. In these forthcoming data, we will be able to analyze the reliability of the teacher-reported measures analyzed here.

Teachers tended to support the implementation of the NAS design in their school. On a scale from negative (-2) to strong (+2) support (zero indicated no support), the average among the 2,500 NAS teachers was .78. Support for the NAS design was measured by asking teachers how strongly they supported or opposed the NAS design team in their school. However, teacher support also varied dramatically as shown by the large standard deviation (SD) of 1.15 (see Table 3.4).

When assessing the impact of the NAS design in their school on their professional growth, teachers reported small positive effects. The average for the NAS sample of teachers was .67 on a scale ranging from -3 to +3 (zero indicated no effect). Similar to teacher support, these perceived effects varied markedly among teachers (SD = 1.35 see Table 3.4).

Teachers' judgments about the effects of the NAS design on their students' achievement and engagement were slightly positive. The mean for this measure was .34 - on a scale that ranged from -3 to +3 (see

Tale 3.4). This measures was a composite that combined teacher judgments about whether or not the design team had positive or negative effects during the 1996-1997 school year on the teacher's students' achievement, engagement in learning, and enthusiasm for learning.

INDEPENDENT VARIABLES

Teacher Background Characteristics

We analyzed several characteristics of teachers including gender, race-ethnicity, educational degree, age, and experience within the current school. The descriptive statistics for these measures were described in Section 3, Table 3.6.

School Demographic Characteristics

In addition to the characteristics of teachers, we also examined whether school demographic characteristics were related to teacher support and the perceived effects of the designs on students and teachers.

The following school demographic characteristics were analyzed in this chapter (see Table 3.7 for descriptive statistics):

- *School poverty*: For the purposes of this chapter, school poverty was measured as a dummy variable that equals one if 50 percent or more of the students within the school received free and/or reduced lunch (variable equal to 0 otherwise). Fifty-five percent of the schools in our sample were high minority schools.
- *School minority composition*: We created a dummy variable that equaled one if 50 percent or more of the students within the school are non-white (variable equal to 0 otherwise). Fifty-three percent of the 130 schools in our NAS sample were high-minority schools.
- *Small School*: This is a dummy variable equal to one if the school was small (i.e., 400 students or less) (variable equal to 0 otherwise). About one quarter of the schools in our sample were smaller schools.
- *Elementary School:* This is a dummy variable equal to one if the school was elementary (variable equal to 0 otherwise). Most of the schools in the sample were elementary schools (64 percent).

School Implementation Factors

We analyzed several implementation factors that we hypothesized were related to teacher support and teacher judgements about effects on professional growth and student achievement and engagement. These included the experience schools have with implementation (i.e., the number of years school has been implementing), teacher familiarity with designs, whether a significant majority of teachers voted to implement, clear communication by designs to help implementation, and availability of resources. We also assessed the associations between the dependent measures and the overall implementation index examined in Sections 5 and 6. A complete description of these measures and descriptive statistics for the sample of 130 implementing NAS sites appear in Chapter 3, Table 3.5.

ANALYTIC APPROACH

We analyzed the relationships between the independent and dependent variable of interest, using a technique that addresses the issue that teachers are nested within schools. This technique allowed us to examine the differences among teachers within and between schools in our sample of 130 implementing NAS sites. (Called multi-level modeling, this approach is described in more detail in Appendix B.)

RESULTS

Differences Between and Within Schools

Before examining the relationships among teacher support, teacher professional growth, and student achievement and engagement and teacher and school characteristics, we examined the differences of these measures that occurred within schools as well as between schools.[27]

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[27] In HLM terms, this is a one-way analysis of variance (ANOVA) with random effects, derived from estimating an unconditional HLM model. That is, while this model controls for the relationships between the teacher characteristics (fixed effects) and the dependent measure, only the intercept (i.e., the school mean for the dependent measure) is allowed to vary across schools (random effects).

The results for the three dependent measures appear in Table 7.1. Roughly 10 to 20 percent of the total differences among teachers (i.e., variance) for these dependent measures was *between* schools. This means that most of the variation (80 to 90 percent) in the support, teacher professional growth, and student achievement and engagement measures was within schools.

While such findings are not uncommon in analyses of school contextual effects on student and teacher outcomes (see Coleman et al, 1966; Bryk and Lee, 1989; Gamoran, 1992), this is an important set of findings for the NAS initiative. When considering school reform and the effects of schools on students, it is critical to understand that most of the differences in critical outcomes - whether in implementation factors or "results" - are likely to occur *within* schools rather than *between* them. Because of such differences within schools, it is critical to assess those factors that may explain them. Moreover, it is important to monitor changes within schools over time and assess factors related to such changes.

Table 7.1.

Differences in the Dependent Measures that Occurred Within and Between Schools: Teacher Support, Teacher Professional Growth, and Student Achievement & Engagement (N = 2,525 Teachers in 130 Schools)[28]

	Teacher Support for Design	**Teacher Professional Growth**	**Student Achievement & Engagement**
Variation between schools (tau)	.18	.11	.14
Variation within schools, pooled across schools (sigma squared)	.80	.86	.84
Estimated HLM reliability (lambda)	.78	.67	.72

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[28] Results are based on a fully unconditional HLM model - a one-way analysis of variance (ANOVA) with random effects.

Teacher Support of NAS Designs

Several individual teacher background characteristics and school context and implementation factors were related to teachers' support for the NAS design in their school as of spring 1997. Table 7.1 shows that teacher support was positively associated with teachers who are women, African American, Latino, have a degree beyond their bachelors, and who have less experience in their current school.[29] Age was not related to teacher support after controlling for other teacher and school characteristics. For example, African American teachers tended to support designs about one-fifth (estimate = .19) of a standard deviation more than non-Hispanic white teachers, after taking into account other factors.

Some school demographics and implementation factors were also related to school level support of the designs. On average, teachers in schools with higher percentages of minority students (50 percent or more) tended to report less support compared to teachers in schools in which less than half the student body was minority. While the estimates were positive and in the expected direction, small size and being in an elementary school were not statistically related to teacher support once other factors have been taken into account.

However, clear communication by the design teams to schools about the implementation process, reports of higher levels of resources, and high levels of design implementation were all positively related to teacher support for the design.

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[29] Table 7.2 shows three sets of analyses, one for each dependent measure. In these types of analyses, we can examine the relationships between particular teacher characteristics and the outcome measures, controlling for other important teacher and school differences. Therefore, both the within- and between-school estimates are provided. In the school level analysis, the actual dependent measure is the school mean score on the dependent measure of interest adjusted for individual teacher characteristics. In Table 7.2, to ease interpretation all the continuous measures are standardized to have a mean of zero and a standard deviation of one. Thus, the coefficients for the continuous standardized variables represent the increment change in the dependent measure for a standard deviation change in the independent variable.

Table 7.2.

Relationship of Teacher Support of Design, Teacher Professional Growth, and Student Achievement & Engagement to Teacher and School Characteristics (N = 2,525 Teachers in 130 Implementing NAS Schools).

	Support	**Teacher Professional Growth**	**Student Achievement & Engagement**
Teacher Level (n = 2,525)			
Teacher Background Characteristics			
Intercept	.04	.02	.02
Female	.12*	.20***	.12*
African American	.19***	.32***	.29***
Hispanic/Latino	.25**	.14	.26**
Bachelors (vs. MA or above)	-.09*	-.01	.03
Age in 30s (vs. 20s)	-.02	-.08	-.04
Age in 40s (vs. 20s)	-.11	-.12	-.12
Age in 50s (vs. 20s)	.04	-.06	-.08
Years in Current School	-.05*	-.04*	-.01
School Level (n = 130)			
School Demographic Characteristics			
High Poverty	-.07	-.13*	-.16*
High Minority	-.26***	-.06	-.15*
Small Size (< 400)	.11	.11*	.14*
Elementary School	.09	.11*	.22***
School Implementation Factors			
Years Implementing Design	-.04	.03	.04
≥ 60% of Teachers Voted to Implement	-.02	.07	.11
Teacher Familiarity with Design	-.06	-.01	.00
Clear Communication by DT	.23***	.14**	.11*
Resources Index	.15**	.12**	.13*
Restructuring Index	.09*	.08*	.11**
% Between School Variance Explained	70%	75%	75%

$^{*}p \le .05$ $^{**}p \le .01$ $^{***}p \le .001$

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NAS Design Effects on Teachers' Professional Growth

Some teacher background characteristics were related to whether teachers assess that the NAS designs had positive effects on their professional growth during the 1996-1997 school year. Women teachers and African American teachers were more likely to report that the design had a positive effect on their professional growth, after controlling for other important differences. Similar to reports about support, teachers who reported being in the school a long time also reported that the design in their school had negative effects on their professional growth, on average.

Teachers from high-poverty schools (50 percent or more) reported lower levels of professional growth than teachers in low-poverty schools after other individual and school factors were held constant. Teachers in smaller schools (less than 400 students) and elementary schools reported higher levels of professional growth when compared to teachers in larger schools (greater than 400 students) and secondary schools.

Clear communication of the designs, more adequate resources, and greater degrees of implementation of key design program elements were positively related to teacher reports about NAS design effects on their professional growth.

NAS Design Effects on Student Achievement and Engagement

Teachers who were women, or African American, or Latino tended to report more positive effects of the designs on student achievement and engagement when compared to male or non-Hispanic white teachers. Teacher age, educational degree, and experience were not related to the student achievement and engagement measure.[30]

On average, teachers in schools serving predominately poor or minority students reported less of an impact of the designs on student achievement and engagement than their counterparts in nonpoor, nonminority schools. However, teachers in small schools or elementary schools tended to report greater design effects on student achievement and engagement than teachers in large or secondary schools.

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[30] When estimating a model that controlled for teacher characteristics, but not school factors, teachers in their 40s (the largest proportion of teachers in this study) tended to report less support and less effects of designs on teachers and students when compared to younger teachers (i.e., teachers in their 20s).

Implementation factors - especially clear communication by designs, more resources, and greater degrees of implementation - were positively related to teachers reporting positive effects of the designs on students in the spring of 1997.

Our analyses explain a significant amount of the differences that occur between schools for the measures of teacher support and teacher-reported effects on teacher professional growth and student achievement and engagement. For example, while 18 percent of the variation in support lies between schools (Table 7.1), the teacher and school measures considered here explain about 70 percent of those between-school differences (Table 7.2). The models for teacher professional growth and student achievement and engagement explain 75 percent of the between school variation in each dependent measure.

SUMMARY

The analyses above help us better understand the implementation process in schools early on in the NAS scale-up phase. Our analyses reveal the following:

- In 1996-1997, teachers reported that they supported the NAS design being implemented in their school during the 1996-1997 school year.
- In addition, they reported very slight positive effects of the NAS designs on their professional growth and their students' achievement and engagement.
- Teacher reports about support for the NAS design in their school and the perceived effects on teacher professional growth and student achievement and engagement differ much more within schools than between them. That is, roughly 80 to 85 percent of the total variance in these measures lies *within* schools rather, and 15 to 20 percent lies *between* the NAS schools. We are able to explain between 70 to 75 percent of this between school variance in our analyses.
- After accounting for other factors, we found that teachers who are women or African American reported more support and greater

effects of the designs on their professional growth and students' achievement and engagement than male teachers or non-Hispanic white teachers. If teachers had more experience in their current school, they also tended to report less support and smaller effects of the designs on their professional growth than teachers with less experience in their present school. Age and educational degree were not consistently associated with the teacher and student measures.

- School demographic characteristics also were related to the outcomes once other factors were taken into account. Smaller schools and elementary schools tended have positive associations with professional growth and student achievement and engagement. High minority or high poverty schools face many challenges, which is reflected by some of their negative associations with support, teacher professional growth, and student achievement and engagement.
- Even after controlling for teacher background characteristics and other school context measures, implementation factors were positively related to the outcomes in our analyses. Clear communication by design teams about the implementation process revealed strong positive relationships with school level averages for support, professional growth, and student achievement and engagement. In addition, schools reporting more adequate resources for implementation and higher levels of implementation tended to have teachers who supported the NAS designs and who reported positive effects of the designs on teachers and students.

8. IMPLICATIONS WITH A LOOK TO THE FUTURE

Several findings emerged from our analysis of the 130 implementing NAS schools. Here, we do not repeat the summaries that appear throughout the report. Rather, we want to point out the general findings and discuss their implications for the NAS initiative as it continues to unfold and evolve.

IMPLEMENTING NAS DESIGNS IN CHALLENGING SCHOOLS

The NAS designs are assisting schools that face many challenges in their quest to provide meaningful learning opportunities for students and their teachers. For the most part, the NAS teams are working with schools that are urban, low-performing, high-poverty, high-minority, and have more stressful climates (e.g., absenteeism and school readiness).

What one makes of the levels of implementation remains open to question. Most of the indicators we examine reveal that the majority of the implementing NAS schools are at the mid-range on our scales. Over time, as we continue to gather information from these sites, we expect that implementation levels will increase and that teacher within these sites will begin to agree about the levels of implementation occurring.

It is noteworthy that variation in implementation levels was not significantly related to either school demographic or teacher background characteristics. These findings suggest that NAS designs can be implemented to the extent observed in our analysis in a wide variety of schools, regardless of the demographic features of the schools and their teaching staffs.

In contrast to these characteristics of schools and teachers, several implementation factors emerged in our analyses as critical in explaining differences in levels of implementation, but also teacher support for the NAS designs and teachers' judgments about design effects on teachers and students.

IMPORTANCE OF CLEAR COMMUNICATION BY DESIGNS

Clear communication by design teams to schools is important for implementation, support, and teacher perceptions about design effects. Teachers in schools reporting greater clarity of the communication by designs to schools also reported greater levels of design implementation. Moreover, such communication was positively related to teacher support for the design and teachers' judgements about the effects of the designs on teacher professional growth and student achievement and engagement.

In RAND's case studies of 40 schools, Bodilly (1998) found that design team communication and information to schools - part of the design-based assistance - was critical for implementation. Moreover, communication varied among the design teams. These findings are consistent with the current analysis of 130 implementing schools. Here too, we find that designs that tend to have higher levels of implementation also tend to have teachers in their schools report greater clarity in the information provided to schools by the designs. Conversely, those designs that tend to have lower implementation levels in our analysis also tend to be those where communication by designs is unclear.

The NAS initiative and its design partners (and other comprehensive school-wide assistance providers) have received a great deal of support from new federal legislation. The U.S. Congress recently passing legislation to provide up to $145 million in incentive grants to state departments of education to support schools who adopt whole-school, research-based models of reform.[31] Between 2,800 and 3,000 schools could receive grants of about $50,000 per year renewable for two years. The NAS designs and others are specifically cited as acceptable examples of proven reforms.

While this federal funding will provide critical funding support for the NAS designs, it raises concerns about the capacity of designs to provide the necessary clear communication (and other assistance) to schools. For the first time during the "scale-up" phase of NAS, the designs are faced with a situation where demand exceeds supply. Within such a context, the participating districts, the schools, and the designs face many challenges to ensure that there is clear communication to further the implementation of the designs. While this may not be an insurmountable problem, the participating partners will need to address these challenges. Perhaps future research can be brought to bear on this issue as well.

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[31] See the Obey-Porter amendments to the 1998 Labor-Health and Human Services-Education Appropriations Act (pp. 105-78).

APPROPRIATE ALLOCATION OF CRITICAL RESOURCES

Our findings also suggest that resources have important consequences for the implementation process. Greater resource availability was related to higher levels of implementation, greater support, and more positive effects of the designs on teacher reports about their professional growth and students' achievement and engagement. Resources in this analysis refers to the degree to which teachers report resources were available - e.g., materials to support instruction, professional development, time for planning and collaboration, consultants to advise and provide support, and funding. Other RAND work on this issue has also pointed to the importance of resources for implementation of the designs (Keltner, 1998; Bodilly, 1998; Berends and Bodilly, forthcoming).

The findings here about the importance of resources for implementation do not imply throwing more money at the school system. Rather, other RAND research suggests that resource availability is more an issue of resource allocation. Keltner (1998) found that of the cost to implement a design during the 1996-1997 school year, nearly 40 percent of the resource burden was met through reallocation of personnel, funds for substitute teachers, and materials budgets. The remaining 60 percent came from resources external to the school - e.g., Title I, district, or grants. The issue, then, is for schools and districts to rethink existing funding streams to support school-wide reform.

Attention to resources - whether funding for materials, professional development, assistance providers, or time - will continue to be an issue even with the support of the Obey-Porter legislation. While the funds provided under the recent legislation supporting comprehensive school reform will no doubt further the demand for NAS designs, many funding issues remain. For instance, districts and schools control many resources that can supplement the federal funds, and some reallocation will be necessary (Keltner, 1998; Berends and Bodilly, forthcoming).

"SCHOOL-WIDE" REFORM?

We need to know more about how the implementation of a NAS design becomes a school-wide reform effort. Our analysis shows that a vast majority of the differences among teachers occur within rather than between schools, at least when considering teacher support for the designs and teacher-reported effects of the designs on teachers and students. There was also a great deal of variation in the teacher reports about the implementation of key design educational activities that occurred within rather than between schools. As these designs continue to provide assistance and as teachers continue to become more familiar with the design team activities in their schools, we expect increases in implementation levels. The designs may then become school-wide. However, a danger in educational reform initiatives, especially those in urban areas under constant siege by the latest reform, is that the NAS designs may be another "program" that is turned on and off at selected times during the school day, week, and/or year. Over time, perhaps the designs are turned off altogether.

This is an issue that RAND will address with the longitudinal sample of implementing NAS schools. If teachers, designs, and districts can sustain some semblance of focus on the NAS designs' coherent visions to structure the educational opportunities of students and teachers, it is likely that the designs will become more widespread in schools. Maybe even school wide. Our analysis suggests, however, that at present, the NAS designs are not being comprehensively implemented throughout the school.

FUTURE RESEARCH

This report provides new information about the types of schools the NAS designs are assisting, the levels of implementation, the factors that contribute to them, and teacher support and perceived effects of the designs on students. For the most part, the bottom line to date, remains consistent with the findings of previous case study analyses (Bodilly, 1998). The major implication is also similar: An overall assessment of the NAS initiative remains an open question.

Over time, as we continue to monitor the progress of these schools in terms of implementation and various performance outcomes, we aim to address whether the implementation levels in these schools deepen, whether the design activities become more widely shared within schools, and whether these and other factors are related to school performance trends. The present analysis sets the baseline for such an assessment. RAND will continue to gather data from teacher surveys, principal phone interviews, and jurisdiction reports on school performance and demographic characteristics. In future analyses of the longitudinal sample, the outcome measures of primary interest will be changes in implementation of key design team program elements, school organization characteristics, and student and school performance trends.

The analyses of such data will provide informative comparisons. We will monitor each school's progress over time in terms of implementation of a variety of design indicators. Not only will we assess whether the average levels on these indicators change, but we will also examine whether the differences among teachers within schools change and whether the design implementation becomes school-wide. If design implementation continues, we expect that there will be greater consensus among teacher within schools about the activities they are implementing.

In addition, we will compare the progress each design makes and further assess the factors that contribute to it. For example, our analysis shows that experience, familiarity, clarity of communication by designs, and resource availability help explain some of the variation in implementation levels among the designs. We will analyze whether these and other factors contribute to differences among the designs over time.

Finally, when the data permit, we will be able to use these comparative analyses over time to assess the progress that the implementing NAS schools make in terms of performance on district- and state-mandated tests, promotion rates, absenteeism rates, and other performance indicators.

When supplemented by RAND's ongoing research - which involves jurisdiction site visits to understand changes in policies and context, comparative case studies of implementing schools, and more intensive study of classroom changes - such analyses will provide a rich description of the NAS initiative, its designs, and the many partners involved in this reform effort.

Appendix

A. NEW AMERICAN SCHOOLS: DEVELOPING A NATIONAL REFORM EFFORT

Promoting excellence and equity in the United States educational system is a critical concern for many states, districts, and schools today. Students' poor academic achievement, disengagement in schools–these are issues even the Clinton administration's educational agenda is working to address (see Riley, 1995; Smith and Scoll, 1995; Smith, Scoll, and Link, 1996).

It's a daunting task. Educating all students to high standards demands system-to-classroom level changes, from new policy approaches and management strategies, to reorganized student learning methods (see Cohen and Spillane, 1995; Hill, 1995; Fuhrman and O'Day, 1996).

Still, some schools across the nation are rising to the challenge, implementing reforms and monitoring their success with a set of research activities (see Newmann, 1996; Fashola and Slavin, 1998). One of these national reform efforts is New American Schools (NAS), a non-profit organization that sponsors several different whole-school reform designs.[32]

This Appendix outlines a brief history of the NAS initiative, describes each design team and the concept of design-based assistance, and raises specific questions about whole-school reform.

THE NEW AMERICAN SCHOOLS REFORM INITIATIVE

NAS was founded in 1991, part of former President Bush's America 2000 effort to support new elementary and secondary school designs. It received continuing support from the Clinton administration through Goals 2000 (Stringfield et al., 1996; Glennan, 1998).[33] Funded by the private sector, NAS sought to engage the nation's best educators, business people, and researchers in creating and implementing school designs unconstrained by existing regulations and conventions. The aim was to help develop "break the mold" schools, innovative options within the public education sector to better educate students for the 21st Century:

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[32] NAS was first known as the New American Schools Development Corporation, or NASDC. In 1995, it became New American Schools, reflecting the move from development of designs to diffusion of existing designs within participating districts (i.e., "scale-up").

[33] For a further description of the evolution of NAS and the designs, see Bodilly (1996, 1998) and Glennan (1998). The section here draws on their work as well as NAS strategy documents.

> For the sake of the future—of our children and the nation—we must transform America's schools. The days of the status quo are over… The mission is straightforward: [NAS] intends to underwrite the design of new high-performance educational environment to jump-start learning in America (NAS, 1991, p. 1).

While private sponsorship of school innovation is not new historically (Tyack and Cuban, 1995), the NAS initiative is significant because of its focus on establishing partnerships among school designs, districts, and schools. NAS views such partnerships as key to helping a large number of schools change their organization and practices to improve student learning.

NAS began its initiative by organizing its work into four phases:

- a *competition phase* to solicit proposals and select designs to develop, test, and diffuse on a wide scale;
- a *development phase* of one year to build the proposal ideas in concrete ways;
- a *demonstration phase* of two years to pilot the designs in real school settings; and
- a *scale-up phase* in which the designs would be widely diffused in partnering jurisdictions across the nation.

COMPETITION PHASE

The competition phase began in 1992. NAS invited team proposals of designs that in five years would create a new kind of American school, one that reexamined assumptions about teaching and learning, organization and governance structures.

The request for proposals (RFP) clearly outlined NAS' vision:

> Bidders are invited to…[imagine] a new kind of American school…in which:

- assumptions, about how students learn and what student should know and be able to do, are completely reexamined;
- visions of the nature and locations of school are reconsidered; and
- the manner in which communities create, govern, and hold their schools accountable is redesigned (NAS, 1991, p. 9).

A 1995 NAS document further articulated this vision:

> We have a vision for our nation's schools. We see schools that enable all of America's young people to develop the skills they need for productive lives as citizens and workers.... [W]e see New American Schools, schools that provide today's children with the academic and social skills they need for tomorrow's world (New American Schools, 1995, p. 1).

NAS' national competition attracted almost 700 proposals, involving more than 500 people from education, business, and professional organizations. A panel of policymakers, researchers, educators, and business leaders judged the designs according to the following criteria:

- *potential* for widespread application and scaling up across schools in different locations;
- *whole-school perspective*, integrating all elements of a school rather than focusing on a single grade or program;
- *incorporation* of high standards with appropriate means of assessing performance against those standards; and
- *all-student focus*, rather than select-group focus based on success potential.

In the end, eleven teams were chosen.

DEVELOPMENT PHASE

Between 1993 and 1995, the eleven winners created their five year plans to develop, demonstrate, and test their designs. NAS worked closely with each team. It provided resources such as money and guidance in return for design ideas, plans, and materials. That *quid pro quo* arrangement was critical for success at this point. Turning proposals into concrete plans was a formidable challenge; the designs were about much more than a myriad of add-on programs. Ten were aimed at K-12.grade levels, and all designs were aimed at the whole school. Two teams at this stage failed to show promise for broad implementation, and were dropped.

Finances became a challenge during this phase. Funding temporarily slowed when concerns arose that President Clinton would not endorse NAS for political reasons. In fact, President Clinton and Secretary of Education Riley finally did endorse NAS as a complement to Goal's 2000, and NAS raised the funds needed to move into Phase II. Its financial footing was secured when Ambassador Walter Annenberg added $50 million to his previous $10 million donation to NAS.

DEMONSTRATION PHASE II

In the summer of 1993, the nine teams began a two-year testing of their designs in about 150 schools. NAS' goal was four-fold:

1. to promote well-developed designs;
2. to demonstrate all their elements in schools;
3. to examine whether the implementation strategies worked in diffusing the designs widely during scale-up; and
4. to concretely show that the designs promised improved student performance.

By the end of this phase, seven of the nine teams were asked to continue their work with NAS.

Three aspects of this demonstration phase are worth noting for their impact on the NAS process (see Bodilly, 1996, 1998). First, during this phase NAS provided partnering schools with money for materials needed to demonstrate the designs. (At the discretion of the design teams, NAS funding for demonstration activities ranged from nearly $2.0 million to over $5.0 million during each year of this phase.) This contrasted with the next phase, when schools and districts had to pay design teams for their services.

Second, qualitative research findings during this phase showed significant variation in design team experience, development of materials, and support from partnering districts (Bodilly, 1996). This affected pacing and planning for scale-up. Instead of developing fee schedules and marketing activities for their design packages, many of the teams were still attempting to complete their designs and demonstrate their effectiveness. There was little time left to spend on plans for becoming service-providing organizations operating within the educational marketplace.

A third aspect of this phase affected the nature of the NAS product: an unexpected amount of assistance schools needed from the teams to implement the designs. From this evolved NAS' strategy of "design-based assistance" (Bodilly, 1996) – a variety of services provided by design teams to schools to further implementation and whole-school transformation. And from that concept evolved a set of implementation strategies which NAS added to its original product of curriculum, instruction, assessments and development materials.

SCALE-UP PHASE III

In September 1995, NAS and its partners began to bring the designs to scale – that is, to implement designs more widely within partnering districts. During the transition into this phase, New American Schools Development Corporation changed its name to New American Schools. NAS decreased its funding to design teams. And the teams began selling their services to schools and districts, successfully (if at times painfully) moving from grantee to business firm in the educational marketplace.

To date, NAS designs are implemented in about 750 schools across about twenty-five partnering districts nation wide. The goal is to have a critical mass of schools in each district reformed in five years. This means that if each district implements NAS designs in about thirty percent of its schools, the total number of schools involved will exceed 1,000.

THE NAS DESIGN TEAMS

As NAS entered Phase III, the design teams continued to develop and come to terms with what a "design" actually was. What is a design? A NAS strategy document defined design teams this way:

> A Design Team is an organization that provides high-quality, focused, ongoing professional development for teachers and administrators organized around a meaningful and compelling vision of what students should know and be able to do. The vision, or design, offers schools a focus for their improvement efforts, along with guidance in identifying what students need to know and be able to do and how to get there. (New American Schools, 1997, p. 6).

Currently, NAS has seven teams working to bring their designs to scale across the nation:

- Audrey Cohen College [AC] (recently renamed Purpose-Centered Education);
- Authentic Teaching, Learning, and Assessment for All [ATLAS];
- Co-NECT Schools [CON];
- Expeditionary Learning Outward Bound [ELOB];
- Modern Red Schoolhouse [MR];
- National Alliance for Restructuring Education [NARE] (recently renamed America's Choice Design Network); and
- Roots & Wings [RW].

There are unique and common features to each design.[34] It's worth briefly describing each in terms of emphases on issues related to

- governance;
- teacher professional development;
- content and performance standards;
- curriculum and instructional strategies; and
- parent and community involvement.[35]

The descriptions that follow are based on design-team and NAS documents.

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[34] Currently, Susan Bodilly of RAND is documenting the evolution of the designs from the initial development of their educational ideas through the phases where these ideas met the economic, sociological, and political realities of implementation in schools. A RAND report on this work will be available in early 1999.

[35] For further information about the designs, see Bodilly (1998); Glennan (1998); Stringfield and Datnow(1998); Datnow and Stringfield (1997); and Stringfield, Ross, and Smith (1996). Further information can be obtained by visiting each design teams website: a common website is http://www.naschools.org, which contains links to each design team.

Audrey Cohen or Purpose-Centered Education

Summary. In contrast to the conventional school environment, Audrey Cohen schools emphasize purpose-centered learning coordinated for grades K-12. Here, knowledge from the disciplines - mathematics, science, social studies, and other subjects - centers each semester on a specific, age-appropriate purpose. Purposes may include working together to improve health, using technology to meet human needs, or developing school-business partnerships. The premise is "that students learn best when they use their knowledge and skills to achieve a purpose that makes a positive difference in their lives and in the lives of others" (Cohen and Jordan, 1996, p. 30).

Governance. In this area, AC does not require a significant amount of change, though some may result if, for instance, the program is part of a magnet or charter school.

Teacher Professional Development. Teachers and school staff are given professional development activities oriented toward a purpose-centered approach to education. They receive training to help them build bridges between the school and life outside of school. They work in grade-level teams, and learn to network with other AC schools to exchange ideas, develop curriculum, and further apply their learning to the community outside the school.

Standards and Assessments. AC schools are oriented toward teaching to extant state standards and performing well on existing assessments. However, each school develops standards (created by Audrey Cohen College) that support and align a purpose-driven curriculum. In addition, AC has developed a framework for specific grade-level abilities and skills. Students engage in frequent self-assessments to monitor their progress. And teachers, rather than using a conventional test, develop assessments that emphasize student work and products.

Curriculum and Instruction. The AC schools reorganize learning according to five "dimensions:

1. Purpose - central to the curriculum and instruction, gives meaning to the other four dimensions.
2. Values and ethics - helps instill an ethos of respect for, concern for, and responsibility to others and society.

3. Self and others - uses various subjects to enhance students' self-awareness and how they fit into the world around them.
4. Systems - provides learning opportunities to help students develop a theoretical and practical understanding of the systems they are affected by every day: families, friends, neighborhoods and communities, and social and government organizations.
5. Skills - helps students learn concrete skills for the achievement of their purpose and for adulthood - including mathematics, computer, and technological skills.

AC schools group students for instruction according to the purpose of each semester. Such an emphasis may lead to more cooperative learning strategies and groups that mix students of different ages.

Parent and Community Involvement. To contribute to a purpose-centered education and maximize community input, community members typically come in (as speakers providing real world insights and applications on a semester's purpose) and students frequently take field trips into the community. Thus, learning becomes more "hands-on" as students engage with teachers and community members. And each class takes some action aimed at serving the community.

ATLAS Communities (Authentic Teaching and Learning for All Students)

Summary. As a amalgam of educational reform projects - James Comer's School Development Program, Howard Gardner's Project Zero, Theodore Sizer's Coalition of Essential Schools, and Janet Whitla's Education Development Center - ATLAS aims to provide a coordinated K-12th grade experience for students to develop positive life habits and deep understandings of their world.

According to ATLAS documentation, its aim stems from beliefs that schools must help students acquire valuable habits of heart, mind, and work; must educate students towards gaining a solid grasp of academic concepts; must create developmentally appropriate learning activities; and must build a community of learners.

Governance. To make these beliefs a reality, a significant amount of change in the current bureaucratic structure of schooling is required. A key governance component of the ATLAS design is that schools are to be organized into K-12 pathways, free from the restrictions and bureaucratic mandates common to most schools.

School Planning and Management Teams (a representative group of community members to foster participatory, inclusive decision-making), govern each pathway. And within each pathway, each school has a variety of teams and programs to promote the development of students and teachers, and the collaboration of school and community stakeholders.

Teacher Professional Development. The professional development in ATLAS communities is intended to evolve through ongoing reflection in common planning time, teacher study groups, electronic networks, student teams, and teacher seminars.

Standards and Assessments. Each pathway sets the standards for what students should know, and each develops exemplary exhibitions for key points and for graduation. While pathway specific, standards are linked to local, state, and national standards, and are made explicit to the community the ATLAS pathway serves. To assess how well students take what they have learned and apply it to new and challenging situations, ATLAS schools rely on projects, portfolios, and publicly judged exhibitions.

Curriculum and Instruction. The curriculum of ATLAS schools emphasizes both basic skills (the three "Rs") and higher-order thinking, such as analytical reading, data collection and analysis, and speaking and listening. Instruction is highly personalized according to a student's academic and social development. To that end, ATLAS schools promote multi-age grouping and cooperative learning strategies. And they attempt to reduce the teacher-student ratio.

Parent and Community Involvement. ATLAS schools encourage community involvement through the school governance teams and specific programs to promote parents engagement with the school and their children's education. ATLAS schools also work toward coordinating social services in the community to support student's development with the pathway.

Co-NECT

Summary. The Co-NECT design team begins its work with a school by tailoring the generic reform model - stressing instructional, curricular, academic standards, and assessment changes - to local needs for grades K-12. It also aims to change the nature of school curriculum by incorporating into it real-world problems and interdisciplinary focus. It encourages academic results in terms of quality products and performances that reflect authentic, in-depth thinking and understanding.

Technology is an integral part of the Co-NECT design. The design believes it must provide students and teachers with a technological infrastructure that allows them to participate as knowledge workers in an information society - to be producers of knowledge, not just consumers.

Governance. There are no specific governance arrangements that are emphasized in terms of the organization of schools within the district. But within the school, several organizational changes are encouraged. Co-NECT is committed to flexible grouping arrangements - e.g., having students remain together for several years in small, manageable clusters or "houses," because they provide a setting for nurturing and supportive social relationships, and because "they are integral to creating a community of inquiry" (Goldberg and Richards, 1996, p. 88).

Teacher Professional Development. To establish a community of learners, professional development is critical. It is multifaceted, involving not merely training but ongoing consulting, facilitating, and planning: "activities that in tandem, transform the isolated and fragmentary occurrences of in-service sessions into the reflective life of a professional community" (Goldberg and Richards, 1996, p. 93).

Professional development is furthered through the use of technology. For example, by using the Internet, teachers can link to a Co-NECT's professional development staff and ask questions and raise concerns about how the program is being implemented in their school. Teachers are also able to enter "chat rooms" to discuss with other teachers the program and their experiences with it.

Moreover, to facilitate building a professional community, Co-NECT has a "critical friends program" that brings school staffs from different sites together to observe, learn, and discuss issues related to the design.

Standards and Assessments. Co-NECT aims for a balanced, comprehensive assessment system that includes exhibitions, portfolios, performance assessments, and conventional tests. Co-NECT provides schools with a number of instruments to monitor the direction of changes, such as needs assessments, gap analyses, and benchmarking to assure teachers, administrators, parents, and policymakers that the results are in accordance to their mutual expectations.

Curriculum and Instruction. Co-NECT schools rely on project-based learning. Small teams of students, teachers, and occasionally community members collaborate on investigation of compelling interest and value to themselves and to those around them (e.g., using collaborative Internet-based projects to address a how smoking affects quality of life in the United States).

Students and teachers function in a technology-rich environment – i.e., "having what you need, when you need it, where you need it" (Goldberg and Richards, 1996, p. 89). For example, teachers can access curriculum projects from Co-NECT's website to adapt to their students' needs and local standards

Parent and Community Involvement. Co-NECT schools encourage parent and community involvement. A community support board, for example, helps the school engage the community in supporting the educational activities of the school. In addition, Co-NECT encourages the integration of social services by providing counseling and referrals to families within its schools. Teacher teams also aim to provide such support as needed.

Expeditionary Learning Outward Bound (ELOB)

Summary. Expeditionary Learning Outward Bound (ELOB) emphasizes experiential learning activities intended to develop the whole student through academics, physical education, character development, and citizenship (see Campbell et al., 1996).

Governance. While the ELOB design does encourage school-based management to apply resources to assist the specific needs of teachers within schools, it does not require any formal changes in the governance or organizational structure.

Teacher Professional Development. Teachers are viewed as guides, and professional development is the linchpin towards building a curriculum. Thus, professional development emphasizes community service explorations, service retreats, Outward Bound educator's courses, and summer institutes or mini-sabbaticals to help with implementation.

Standards and Assessments. The learning expeditions within ELOB schools are planned with clear learning goals and objectives and are aligned with district and/or state standards. The aim is not only to meet the external standards, but exceed them. Thus, not only are the learning expeditions the primary vehicle for students to learn critical skills and habits, they are also an important strategy to prepare students for the district- or state-mandated tests. Within the schools, ELOB encourages the use of authentic assessments, performance-based exhibitions, student portfolios, and student self-assessment to monitor students' academic progress. As part of this ongoing assessment process, students typically revise their work several times until it meets high standards.

Curriculum and Instruction. In an ELOB school, students spend most of each day on purposeful, open-ended learning expeditions that have intellectual, service, and physical dimensions. Typically, these expeditions are in-depth, 6-9 week studies of a single theme or topic. Field work is a critical component of the ELOB curriculum, providing students with opportunities to engage in real-world investigations (e.g., interview community members or collecting water samples to assess quality).

ELOB schools eliminate formal tracking to organize students for instruction. In its place, ELOB uses a multi-year approach; that is, students stay with the same teacher for two or three years in order to create a more stable teacher-student relationship. ELOB also encourages the use of small groups within classes to promote social and academic learning.

Parent and Community Involvement. While community involvement is not a central component of the ELOB design, it does require students to participate in community service. Moreover, the expeditions that occur off-site may also encourage sensitivity and awareness of the community surrounding the school.

Modern Red Schoolhouse (MRSH)

Summary. "The Modern Red Schoolhouse is designed to take the virtues and principles of the little red schoolhouse and make them work in today's diverse, complex society" (Heady and Kilgore, 1996, p. 141). The design combines elements of traditional education with innovative instructional methods, including extensive use of technology for implementation and student learning. Its aim is to provide all students with a strong foundation in American culture and the skills needed for future employment to become productive citizens.

Governance. While existing MRSH sites comply with extant policies of assignment, MRSH argues that it is best for students to attend a school by choice rather than assignment so there can be greater consensus on the vision, mission, and goals of the schools. In addition, a strong program is possible only with the support of the vast majority of the staff in the school. Therefore, without a school choice governance arrangement, MRSH emphasizes that teachers and principals should have considerable freedom in organizing instructional activities and in allocating the resources necessary to meet the needs of their students. While the MRSH is committed to maintaining the existing per pupil costs, the design emphasizes that is important for schools to have the authority and discretion to make decisions about their budgets, staffing, curriculum, and school schedules.

Standards and Assessments. The MRSH is designed to share a common set of academic standards across its schools with a common set of assessments. It emphasizes that schools should have greater flexibility in deciding how best to accomplish their mission and goals, while also emphasizing that schools should be held accountable for student progress. Benchmarks, school reports, MRSH assessments, and other vital statistics of the school and its students are made available to the community for accountability purposes.

MRSH attempts to set clear and high expectations for all students. Its performance standards are high in core subject areas - mathematics, science, English, history, and geography. Learning time must be tailored to the needs of individual students. And pedagogical techniques must be enacted to give students multiple paths of attaining high standards because students have different learning styles.

Curriculum and Instruction. Curriculum is intended to be flexible to meet the needs of each school and its students. Each site creates "foundation units" that incorporate MRSH standards, performance objectives, guidance for teachers to accomplish the goals of the unit, and ongoing assessment of the learning activities.

The general strategy is based on research findings that show that reform practices mandated by an external agent are rarely successful because they are not "owned" by those actually implementing the changes. And leaving school staff free to choose anything is overly burdensome and potentially paralyzing. Thus, "guided choice reduces the amount of searching that teachers must do before they can make a decision by providing prototypes, evaluations of various software, and examples of how other schools have applied general concepts" (Heady and Kilgore, 1996, p. 158).

The MRSH design encourages use of alternative grouping strategies to support learning of this curriculum. For instance, MRSH schools rely on multi-age, multi-year grouping with multiple regroupings during project work rather than homogeneous grouping and pull-outs. The MRSH design discourages age-limited grade levels and encourages the organization of the school into primary (kindergarten - grade 4), intermediate (grades 5-8), and upper divisions (grades 9-12). Within each division, students progress toward mastery of the standards in ways appropriate to their individual strengths and talents.

In the MRSH, parents, teachers, and students are encouraged to specify values that are critical to their community so that these values can be emphasized by everyone in the school.

Parent and Community Involvement. While not a major emphasis of the design in terms of specific activities, parent and community involvement are encouraged. Moreover, MRSH helps schools, especially those with high concentrations of at-risk students, assess their social services needs. MRSH schools emphasize the academic aspects of students lives, though the design does provide information about social service support to parents as appropriate.

National Alliance for Restructuring Education (NARE)

Summary. The National Alliance for Restructuring Education recently changed its name to America's Choice Design Network (see Rothman, 1996; Tucker and Codding, 1998). Its design attempts to restructure schools by adopting "high performance management" strategies - those "best practices" used by some of America's leading organizations.

Governance. NARE aims to restructure the organization and management of schools, districts, and state departments of education to adapt business practices to the education system. While the goal is improving student learning for the new demands of the workplace, the organizational restructuring aims to transform school systems from bureaucratic, factory organizations to performance-driven organizations. (See Bodilly, 1996, for a comparison of the designs in terms of their emphasis on school- vis-à-vis system-level change.)

As Rothman (1996) writes, "Changing schools without changing the central offices is like changing a company by retooling a factory without addressing headquarters. It will not work" (p. 181).

Teacher Professional Development. Professional development activities are an important element of the NARE design. To provide learning environments that integrate curriculum and instruction, teachers, and technology - all oriented toward high standards - the NARE design emphasizes professional development opportunities that bring lead teachers and principals together with professional development experts. These opportunities to build networks and to be informed by new ideas that buttress the NARE design are key to developing leaders within the school who then can train and develop the entire school staff.

Standards and Assessments. Setting high standards and assessment is a key component of the NARE design. The standards emphasize basic skills as well as analytical thinking. And assessments such as New Standards, a grassroots partnership now working with 23 states and the District of Columbia, are tools to help monitor the progress of students toward meeting academically rigorous standards.

> The Alliance is convinced that reform begins and ends with standards - what we expect students to know and be able to do. The hallmark of its agenda is the Certificate of Initial Mastery (CIM), a credential that will be awarded to students who demonstrate they have met certain high standards of accomplishment in academic subjects and applied learning. (Rothman, 1996, p. 181)

Curriculum and Instruction. Curriculum and instruction in NARE schools is standards-based. Content and strategies are designed to help students acquire knowledge and understanding and apply it to real-world problems. Technology is also a key tool in helping students learn to the NARE standards. So too, alternative grouping arrangements are encouraged and formal tracking or ability grouping arrangements are strongly discouraged.

Parent and Community Involvement. The NARE design also focuses on community and parent involvement. Because the problem of education is larger than the school, the design attempts to build a network of family and student support by engaging parents in the schools and the community as well. Moreover, it aims for integrating health and human services to help communities make better use of scarce resources for youth development. Finally, the design aims to link every student's learning inside the classroom to the outside community and work-world.

Roots & Wings (RW)

Summary. Focusing on grades K-6, the Roots & Wings (R&W) school design aims to teach all children the skills required for success (see Slavin et al., 1996). The design has two primary objectives, as reflected in its name. First, it aims to teach every student, regardless of family background or disability, to high standards in reading, writing and language arts, mathematics, science, history, and geography. In a R&W school, all participants - school staff, parents, community agencies, and others - work together in a coordinated, comprehensive manner from birth onward to ensure that all children receive the support they need to become competent, confident, and caring learners. Thus, the "roots" aspect of R&W aims to make sure that every child makes it successfully through the elementary grades.

The second objective, the "wings," is to help every child build higher-order thinking skills so that all will be able "to creatively and flexibly solve problems, understand their own learning processes, and connect knowledge from different disciplines" (Slavin et al., 1996, p. 208).

Governance. RW encourages, but does not require, site-based management so that schools have the authority to control internal allocation of discretionary and state funding sources. RW also encourages participatory school improvement teams. It requires two new staff positions: (1) the family support coordinator, who recruits volunteers to help out in the school, tailors the before- and after-school programs to students' needs, and makes home visits to families to further address students' needs; and (2) a Roots and Wings facilitator who provides release time to teachers, brings together needed materials, observes instruction, and suggests improvements.

Teacher Professional Development. Professional development involves training of all teachers within the school. The goal is to develop a team of educators that can address the many needs of children in an integrated manner. In addition, each school has a full-time facilitator who gives teachers feedback on their activities, provides demonstration lessons, conducts workshops and other activities oriented toward students' educational needs.

Standards and Assessments. A variety of assessments are used to monitor the progress of students within RW schools - including standardized and individually administered reading measures and hands-on demonstrations and portfolios. RW is one of the NAS designs that uses homogeneous grouping explicitly to accomplish specific academic goals. For example, to develop specific reading or mathematics skills to get students to grade level. Such grouping is used flexibly with frequent assessments of student progress and instructional group reassignments when appropriate.

Curriculum and Instruction. The RW curriculum is varied. For instance, Reading Programs within the R&W design are based on the Success for All curriculum. Teachers attempt to enhance student understanding, listening and speaking vocabulary, and knowledge of story structure by reading children's literature to students and by engaging them in discussion. Typically introduced at age six, Reading Roots emphasizes oral language in the beginning in an attempt to move students toward written symbols. A family support coordinator attempts to work with parents to get them to reinforce basic reading skills at home. Reading Wings uses cooperative learning activities that focus on story structure, prediction, summarization, vocabulary building, decoding, and writing related to the story. Students read with partners and engage in discussions with them. Throughout the reading program one-on-one tutors work with students to ensure that every child is keeping up with the regular curriculum and its objectives.

Mathematics within the R&W design is based on the standards of the National Council of Teachers Mathematics (NCTM) by balancing mathematical concepts and skills with applications in the real world. Helping students to build on their preexisting knowledge of mathematics, Math Wings uses cooperative learning, use of manipulatives, demonstrations, and discovery to further mathematical understanding of all students.

Parents and Community Involvement. The RW design emphasizes parent and community involvement, with particular emphasis on involving parents in the school and provided a set of integrated social support and services to families. Such activities aim to promote the success of every child, to empower parents as partners, and to integrate services to children and families. R&W schools also have a site-based team that are concerned with attendance, school-based interventions, parent involvement, and building effective connections between families and community service providers.

FROM DESIGNS TO DESIGN-BASED ASSISTANCE

The designs and their various emphases on organization and governance, teacher professional development, content and performance standards, curriculum and instructional strategies, and parent and community involvement share some commonalties. Often, the teams' descriptions of these features reflect the rhetoric of educational reform and school restructuring more generally - high educational standards for all students, authentic forms of instruction and assessment, parent involvement, and site-based management.

However, there is a unique attribute to the NAS designs that aims to make this rhetoric a reality: *design-based assistance* (see also Bodilly, 1996; Glennan, 1997, 1998). In theory, design-based assistance is the commitment of the designs to provide a variety of services to further implementation and the transformation of the whole school - its organization, curriculum, instruction, and professional development of staff. Toward this end, it is important for teachers and staff in schools to have a significant amount of choice when adopting design-based assistance. Thus, consumer buy-in (i.e., 75 percent or more of the teachers voting to adopt the design) is a critical aspect of each NAS design and consistent with NAS' strategy that educational change cannot be mandated "from above."

The concept of design-based assistance evolved after the implementation experiences of designs in schools. Initially, the NAS strategy focused primarily on getting designs in schools. Each design would provide a vision for whole-school transformation. The intent was to help each school re-vision education through a coherent, coordinated set of activities that ultimately would improve students' academic development. NAS believed that a national reform effort would be established if schools were transformed with the help of such designs - one at a time. However, this NAS strategy has evolved:

> Over the past four years, we have recognized that the power of school-by-school improvement is limited. The major evolution in the New American Schools strategy has been the growing conviction that, without changes in the structure, policies, and practices of

> school systems, good schools will remain the exception (New American Schools, 1997, p. 5).

Thus, rather than breaking the molds of existing schools - one at a time - with fundamentally different models of organization, NAS has shifted toward a "bottom-up, top-down" perspective. NAS and the designs attempt to provide assistance (1) to districts for establishing a conducive operating environment for the designs, and (2) and to schools for changing their organization, professional development, and curriculum and instruction to improve student learning. As the Chairman of the NAS Board, David Kearns, and the current President of NAS, John Anderson, wrote:

> …the transformation of both a large number of schools and the operating environment requires…a high level of attention and active participation on the part of a person or team of people with the time to devote to coordinating activities, building coalitions, and maintaining a focus on the change process. This coordination role is best played by an on-site team, with the assistance and support of an external partner who can marshal outside resources and help mobilize action. New American Schools serves at the outside partner… (Kearns and Anderson, 1996, p. 21).

Educators and the general public have typically viewed the NAS product as school designs. Yet, the transformation process is not as simple as schools breaking their current molds and adopting new ones. The design itself is not sufficient for school change. Rather, designs need to be coupled with design-based assistance - the commitment of the designs to provide a variety of services to further implementation of the design and assist in transforming the entire school. For example, NAS design teams provide ongoing assistance through materials, professional development, and local and outside experts to help articulate the school's vision, mission and goals; guide the instructional program on the school; shapes the selection and socialization of staff; and establish common expectations for performance, behavior, and accountability among students, teachers, and parents. Because NAS found that most schools have benefited from focused, strategic assistance in order to implement a design, it now feels its most important accomplishment has been support and development of design-based assistance organizations.

> The distinguishing feature of the NAS effort is that NAS consciously set out to provide a diverse set of design-based assistance options from which schools can choose and has made investments in Design Teams to allow them to develop instructional materials, assistance organizations, manuals, and other materials intended to help schools understand and use designs (Glennan, 1998, p. 3).

NAS believes that such assistance-based organizations are likely to be widely successful only if they operate in jurisdictions that provide supportive operating environments. Therefore, in phase three, NAS has taken on three tasks:

(1) to help a large number of schools implement designs that enable their students to achieve high academic standards;
(2) to foster the transition of teams to sustained operation as assistance organizations; and
(3) to help school jurisdictions create operating environments that support and sustain schools using NAS or other effective designs.

The strategy of design-based assistance reflects an approach that attempts to extend some of the general findings from the effective schools literature. That is, effective schools are characterized by the delegation of authority to the school level to make decisions and by a consistent, coherent vision that permeates from the principal's office to the teachers and students in classrooms. The vision in the NAS reform is provided by the designs, but chosen, adopted, and implemented by teachers in schools. Thus, in the strategy there appears to be tight coupling around goals and mission at the higher administrative levels, and loose coupling at lower levels, where there is delegation of authority to teachers and school staff with design-based assistance to restructure schooling activities (see Meyer and Rowan, 1978; Purkey and Smith, 1983; Rosenholtz, 1985).

Today NAS views the design teams with a broader perspective on what it takes to create such a transformation. NAS continues to believe that designs are the driving forces behind high quality schools (see Hill, Foster, and Gendler, 1990; Hill, 1995; Glennan, 1998). But NAS recognizes that these forces require more than one set of activities to bring about school change.

RAND'S ROLE IN NEW AMERICAN SCHOOLS

NAS has supported continuous assessment of its efforts since its inception, and RAND has provided analytical and research support necessary to provide both internal information for decision-making purposes and external information to the public about progress, strengths and weaknesses, and barriers to reform.

From the beginning, research and analysis has played an important role in understanding the implementation process of NAS. RAND has conducted case studies in a variety of sites over the past few to assess the manner in which the designs have evolved through time and to describe the strategies teams use to assist schools in implementing designs. The results of this work have provided critical feedback to the design teams and to NAS for decisions about further support. RAND has played a prominent role in NAS' development of a scale-up strategy and has provided public documentation of what has been learned over NAS' early years (e.g., Bodilly et al., 1995; Mitchell, 1996; Bodilly, 1996, 1998; Glennan, 1998).

During the third phase of NAS, RAND's mandate is to monitor the progress of the schools implementing NAS designs. RAND's assessment is tailored to highlight the strengths of reform and to provide assistance in ameliorating weaknesses. The results and lessons learned from these monitoring tasks will provide critical feedback to NAS; to design teams and jurisdictions as a "critical friend"; and to the general public. To fulfill this mandate, RAND is gathering qualitative and quantitative data through interviews, case studies, and surveys to better understand the implementation of reform initiatives. More information on RAND's program of studies on NAS and the data and methods used for this report are provided in Section 2.

B. ANALYTIC APPROACH FOR MULTI-LEVEL MODELS

In Section 7, because the data here are nested - that is, teachers are nested within schools - we rely on multi-level methods to provide more accurate estimates of the relationships between the dependent and independent measures. We use Hierarchical Linear Modeling, although there are other approaches (see Bryk and Raudenbush, 1992; Bryk, Raudenbush, Congdon, 1996; Singer, 1998).

First, we partition the variance in the dependent variables into their within-school and between-school components. This provides information about whether most of the variance in the dependent measures (support, teacher professional growth, and student achievement and engagement) lies between schools or within. Next, we estimate a set of regression coefficients in each school (level 1), and then some of these level one coefficients become outcomes to be explained by school demographic and implementation factors (level 2) (see Appendix C for specifics).

It is important to remember that our sample of NAS schools is not a random sample, but a census sample of all those schools that reported implementation during the 1996-1997 school year and had survey information from teachers and principals. Despite this not being a random sample, we use HLM methods to explore the relationships among variables at one point in time - spring 1997. These provide a more accurate understanding of the relationships in the NAS population of implementing schools. Because cross-sectional data are ill-suited for establishing causality, we aim to avoid causal language by talking about associations and relationships among variables. Only as we follow up this sample in future years will longitudinal data be available to explore causal relationships.

We estimate the following multi-level models with the Hierarchical Linear Modeling program developed by Bryk, Raudenbush, and Congdon (1996) (see also Bryk and Raudenbush, 1992):

Individual Teacher Model (Level 1):

$Y_i = \beta_0 + \beta_1$(Female) $+ \beta_2$(African American) $+ \beta_3$(Hispanic) $+ \beta_4$(Other) $+ \beta_5$(BA Degree) $+ \beta_6$(Age in 30s) $+ \beta_7$(Age in 40s) $+ \beta_8$(Age 50 or over) $+ \beta_9$(Years experience in this school) $+ r$,

where

Y_I is the dependent measure of interest (e.g., support, professional growth, or student achievement and engagement);

$\beta_{0\text{-}9}$ are the level-one coefficients for the listed independent variables; and

r is the level-one random effect.

School Context Model (Level 2):

$\beta_0 = \gamma_0 + \gamma_1$(School poverty dummy) $+ \gamma_2$(School minority dummy) $+ \gamma_3$(Small school dummy) $+ \gamma_4$(Elementary school dummy) $+ \gamma_5$(Years implementing) $+ \gamma_6$(Voted) $+ \gamma_7$(Familiarity) $+ \gamma_8$(Clear communication) $+ \gamma_9$(Resources index) $+ \gamma_{10}$(Implementation index) $+ u$,

where

β_0 in this model is from the teacher level equation above, and it is the school-level average level for the dependent variable of interest;

$\gamma_{0\text{-}10}$ are the level-two coefficients for the listed independent variables; and

u is a level-two random effect.

Similar models are estimated for teacher support of the NAS design in their school as well as teachers' judgements about the effects of the NAS design on their professional growth and their students' achievement and engagement.

In these type of regression models, the intercept is modeled as a random parameter ("free" in HLM). The teacher variables are included as fixed effects. That is, we constrain their between-school variance to zero and center them around their grand means (i.e., the average values on the teacher variables for all the NAS teachers in this sample). Because of this centering, the intercept may be interpreted as the school mean score on the dependent measure of interest, adjusted for individual teacher characteristics.

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